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ABSTRACT

This report describes efforts to develop and implement a technique for using information on school performance as a tool in improving planning and management within a large urban school system. The Urban Institute and the Atlanta schools are attempting to demonstrate a technique for grouping schools on the basis of their student composition, comparing performance among similar schools, and then using the results in planning new programs and in assessing and restructuring existing educational activities. The method involves a means of identifying groups of schools which serve similar student populations and in which performance is therefore expected, a priori, to be similar. These groupings provide the framework for comparing relative performance, both within a single group and among groups, as a means of determining what is happening in a large complex school system. The technique focuses on outputs--on the changes that are occurring as a result of exposure to the educational process. The classification technique focuses on the school as the unit of observation, since it, rather than the pupil or the project, is the basic administrative unit in a local school system. Finally the classification techniques relies primarily on data which is already at a central location in the school system. (Author/JM)

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The Atlanta/Urban Institute School Classification Project

Bayla F. White
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CHAPTER I. PURPOSE OF THE PROJECT

Urban public school systems have increasingly been called upon to address and correct major inequities in our society while providing quality education to large, heterogeneous school populations. If, in the future, school systems are to respond to this challenge, then the objectives of education must be clarified and the information about the performance of the school system in meeting those objectives must be improved and used effectively. This report describes efforts to develop and implement a technique for using information on school performance as a tool in improving planning and management within a large urban school system.

A. The Need for Information on School Performance

School personnel are bombarded with numbers, which are supposed to be useful in making decisions affecting the operations of the educational system. Rarely, however, do the data which pour out of large school systems focus on the success of the schools in meeting the needs of the students. Performance information has been the missing element in the management of public school systems. The data base that is available for measuring educational success (in most cases consisting of some student achievement data and project evaluation results) has not been made relevant to the needs of school system decision makers: teachers, principals, supervisors, resource teachers, superintendents and their staffs, and school board members.

Usually, local education information focuses on inputs to education and not on what changes are occurring in students in the system. For example, an information system might be designed to determine the unit cost of providing one additional elementary school teaching position in school X, without regard to whether there is evidence that the performance of the pupils in that school indicates a need for another teacher or whether there is evidence that student performance will improve with the addition of another teacher.

In those cases where information systems have looked at student performance, a single measure of performance has often been used, whether appropriate or not. For example, the success of a particular project may be measured by changes in average reading performance, even though improved reading is not the primary aim of the project nor is the "average" student the target population. Still another problem is that information systems have tended to treat all students or all schools within a system as if they were the same, without taking into account socio-economic differences among groups of students or differences in the composition of schools.

At present, most local educational evaluation focuses on analysis of special projects that occupy only a small fraction of the input to a particular school, while opportunities are ignored to make comparisons of input and output across the entire school system. Experience has shown that these local project evaluations, usually carried out to fulfill Federal requirements, are neither timely nor comparable [1/] and are of

1/ See Federal Evaluation Policy, Joseph S. Wholey, et al., The Urban Institute, 1970; Design for a School Rating or Classification System, Bayla F. White, The Urban Institute, 1970; and Title I Evaluation and Technical Assistance: Assessment and Prospects, Joseph S. Wholey, et al., The Urban Institute, 1971.

little use to local decision makers. Project evaluations also operate under such severe methodological constraints that their results are often inconclusive.

Measuring "success" in education is an extremely difficult process, since education clearly has multiple benefits to the student and to society at large. Furthermore, success varies among pupils, classes, grades, and schools for reasons which are not well understood, to say the least. But while at this point it may be impossible to measure precisely what is happening in the schools, it is clearly possible with existing data to improve the level of information about school performance in such a way as to have a positive impact on the decision making process.

B. School Classification as a Planning and Management Tool

The present need, then, is not so much for more data, but for techniques which will enable school personnel, and eventually the public, to use existing information more effectively. The Urban Institute and the Atlanta schools are attempting to demonstrate a technique for grouping schools on the basis of their student composition, comparing performance among similar schools and then using the results in planning new programs and in assessing and restructuring existing educational activities. The method involves a means of identifying groups of schools which serve similar student populations and in which performance is therefore expected, a priori, to be similar. These groupings provide the framework for comparing relative performance, both within a single group and among groups, as a means of determining what is happening in a large, complex school system. Armed with information about relative performance, school officials should be better able to identify problems, to isolate trouble

spots, to take note of unexpectedly high performance, to make more informed decisions on how to allocate scarce resources, and to restructure existing activities or plan new programs more effectively.

The proposed system has four distinguishing characteristics

(1) The school classification technique attempts to take into account the level of difficulty of the task of education by identifying schools which serve similar pupil populations. That is to say, students bring to the educational setting certain characteristics over which the school system has little control. The school must fit the educational program to those characteristics. Consequently, a comparison of performance in schools which serve similar students is one technique for determining what is happening in a large school system.

(2) The school classification technique focuses on <u>outputs</u> - on the changes that are occurring as a result of exposure to the educational process. Defining and agreeing upon the appropriate measures of educational output will be an iterative process which will reveal gaps in existing performance data and lead to the development and installation of new or different techniques for assessing educational performance.

(3) The classification technique focuses on the <u>school</u> as the unit of observation, since it, rather than the pupil or the project, is the basic administrative unit in a local school system. Although within a school, personnel attempt to deal with the needs of individual students, decisions made at a higher level within the school system usually involve one or more schools (e.g. the assignment of staff, allocation of books and supplies, the placement of demonstration programs). Measures of output and input in the classification system will relate to the school or grades within a school, and not to individual students.

(4) Finally, the classification technique relies primarily on data which already are available at a central location in the school system.

How will the technique of classifying schools improve decision making in a local school system? Essentially, a classification system provides school officials with a tool for dealing simultaneously with a vast quantity of information about all the schools in the district. For example, instead of a single list of attendance rates for all schools in the system, attendance figures would be presented in relative as well as absolute terms. How does the rate of attendance at school A compare not only to a rate of 100 percent, but also to attendance rates for the other ten schools with student populations similar to that of school A? Thus, by identifying and classifying schools on the basis of student characteristics, the classification system provides a method for determining what a particular school is accomplishing with the students it serves and in relation to other, similar schools.

To borrow an analogy from medicine, the pattern of an individual school's performance which will emerge from data produced by the classificiation system is, in a sense, like the chart kept on a patient. The measures of performance represent important clues to the overall "health" of the patient (the school). When something unusual develops, the doctor (school official) can prescribe one or another of the treatments available and can judge its impact by changes in performance which show up when the next set of readings is taken.

Comparing relative performance of reasonably similar schools should provide a useful means of pinpointing the areas (e.g., a part of the 5th grade curriculum) which are particularly troublesome either for certain groups of schools or for particular schools in which performance differs significantly from other similar schools. Just as the system can be used

to locate problem areas or schools with problems, it can also be used to find educational success stories. It can identify schools in which performance exceeds expectations, or it can pinpoint subject areas in which particular types of schools excel. In none of these cases will the classification system, by itself, explain why the situation exists, but it can be used in designing procedures to account for the situations revealed by the classification system reports.

Comparing the relative performance of schools can sound like a very threatening process. It does not have to be. School officials, teachers, students, the general public make comparisons among schools every day. There is no difficulty getting someone to indicate which schools are "best" and which are "worst." The real difficulty comes in defining the basis on which those judgments are made. The comparisons often are not only uninformed and subjective, but are also unfair, because they fail to take into account the characteristics of the students. The school classification system, outlined in this report, provides a means for making informed, reasonable comparisons. The information which results from such comparisons will become an important factor in decisions about how and where to use scarce educational resources.

C. The School Classification Project in Atlanta

In December, 1970, a Memorandum of Understanding was signed between the Atlanta Public School System and The Urban Institute for the development and testing of a school classification system. The initial phase of the project was to last approximately six months, during which time Institute staff would explore with Atlanta personnel the feasibility of actually constructing a classification system. For its part, Atlanta was

to provide maximum access to data and to personnel throughout the Atlanta school system. The Institute provided personnel to work on the project, to do the interviewing, and to construct and test the pieces of the classification system as it evolved.

During its initial six months, the project was to focus on elementary schools. From the outset, it was realized that to develop and install a classification system which dealt with all schools and all levels of education would take several years. The initial phase of this project was to be a kind of trial balloon, to see if the idea of classifying schools and looking at relative performance among similar schools had utility for the superintendent and his staff in Atlanta.

Although the Institute project staff had some general ideas on what a classification system should include, there was no preconceived notion of what an operative system would look like. Since the aim of a classification system is to assist local decision makers, it was essential that the classification system developed in this project be responsive to the needs of Atlanta. The precise nature of the system would depend on the kinds of information school personnel in Atlanta wanted and on the availability in Atlanta of the necessary data.

The methodology adopted was simple and pragmatic. First, get to know how the Atlanta school system functions, so that the classification system will be relevant to Atlanta. Next, try to determine what data are available on which to identify similar schools, according to the composition of their pupil populations. Then make a rough attempt to classify the schools, for the purpose of identifying a sample of elementary schools. Available data on school performance would be gathered on the schools in

the sample. Preliminary data analyses would be carried out on the sample schools in order to see what kinds of information might be generated by the classification system.

During the period January through May, Institute staff made numerous trips to Atlanta. Key personnel throughout the central staff of the school system were interviewed to gain from them an understanding of the school system, to identify some of their data needs, and to get their ideas on what information should be included in the classification system.

The remainder of this report describes the results of this six month effort. Chapter II sketches the organizational structure in Atlanta and identifies some of the potential users of the classification system. Chapter III describes the process used to identify and group schools serving similar pupil populations. Chapter IV is an initial investigation of how data generated by the classification system might be applied and interpreted by school officials. Chapter V describes an attempt to fill an information gap identified by Atlanta staff. Chapter VI charts the next steps in this project.

CHAPTER II. A SCHOOL CLASSIFICATION SYSTEM IN ATLANTA

This chapter relates the school classification system to the organization of the Atlanta schools. In the pages that follow, some potential users and uses of the information generated by the school classification system will be identified, as well as some of the constraints to its implementation.

A. Organization of the Atlanta Schools

The Atlanta school system serves more than 100,000 students, has a teaching staff of more than 5,000 and an annual general fund budget of nearly $90 million. The boundaries of the district are coterminous with those of the city of Atlanta. The schools are organized into 124 elementary schools (K-7) and 26 secondary schools (Grades 8-12). There are several primary schools, a few middle schools and a few junior high schools.

Once every four years the voters of Atlanta elect a ten-member Board of Education which sets general policy for the schools in close consultation with the Superintendent and his staff, and which has ultimate review and approval power over the annual school budget and the sources of revenue for the operation of the schools.

The Superintendent of Schools, John W. Letson, presides over the day-to-day operations of the Atlanta schools, aided by a staff of six assistant superintendents, five area superintendents, and a comptroller. The assistant superintendents serve as staff to the superintendent; each has responsibility for a functional area, rather than jurisdiction over

the day-to-day operations of the schools. The comptroller prepares the annual budget and is responsible for the maintenance of all financial data. In addition, his office is responsible for the school system's data processing facilities.

An area superintendent, as the name implies, has responsibility over all the schools within a particular geographic area of the city. The area superintendents and their staffs appear to have the most direct influence on the schools. They play a pivotal role in decisions affecting every aspect of school operations. In particular, an area superintendent participates in decisions concerning selection and placement of staff for individual schools, in the development and operation of educational programs, and in the expenditure of certain line item funds.

The assistant superintendents, area superintendents, and the comptroller form the superintendent's cabinet and advise him on policy, administration, and procedural matters at weekly staff meetings.

B. Potential Uses and Users of the Classification System in Atlanta

The basic purpose of the classification system is to generate information which can be used by Atlanta personnel in making decisions about the educational program. The reports of the classification system will focus on performance of schools or grades within a school. Consequently, the primary users of the system will be those individuals in the school system who participate in decisions concerning more than one school at a time. A classroom teacher, for example, may be interested to know what is the pattern of performance in his school as compared to other similar schools, but the primary influence on his teaching will continue to be his diagnosis of his student's needs. On the other hand, a resource

teacher assigned to an area office should find information on relative performance of schools of immediate use in determining how best to apportion his already scarce time.

At the other extreme, removed from frequent, regular contact with individual schools are the superintendent and members of the school board. These key decision makers usually obtain their information about students, schools, policies, and programs indirectly. If the superintendent were to spend half a day at each of Atlanta's 150 schools, that task alone would consume almost one-half of the school year. And yet, both the superintendent and the school board make policy decisons which directly affect the allocation of resources to every one of those schools.

Decisions are frequently made in the absence of information about performance (either relative to similar schools or in relation to expected performance). Information on inputs to education or resource allocation becomes the critical factor in decision making, since it is relatively easy to determine if every child or every school is getting an equal share. For example, the pupil/teacher ratio is supposed to be applied equally to all schools, whether elementary or secondary, implying that all schools and all children have the same needs for teachers. If the ratio is to be changed, the change applies equally to all schools. Should the ratio be 28:1 or 27:1? At the present time the question is answerable only in terms of current financial constraints: is there enough money to do all the other things that must be done and keep the 27:1 ratio too? There is no method now available in Atlanta for building into a decision about pupil/teacher ratios any information about the need for staff as reflected by pupil performance. Chapter IV illustrates how some of the information

about relative performance on achievement tests might be used in deciding where to place staff.

While most of the Atlanta personnel with whom we spoke had little or no trouble describing schools on either end of the performance spectrum, it was much more difficult to get any sense of what was happening in the vast majority of the schools in the middle. No one knows with certainty if the different curricular approaches now in use in Atlanta elementary schools have differential effects on the students. What is the relationship between student performance and the socio-economic composition of Atlanta's schools, and how might the programs or staffing patterns in the schools be adjusted to insure the greatest opportunity for the students regardless of their background? Do the special programs designed for students at the lowest end of the achievement distribution have an impact on the academic performance of these students? What is the effect of mobility on student performance? There are no readily apparent answers to these and many other questions raised by Atlanta decision makers. The classification system is an attempt to show that data which exist at many different points in the school system can be organized so as to address these questions.

The school classification system makes comparisons among apparently similar schools and points up differences which may exist. Hopefully, these comparisons will generate questions about why differences occur. Why is performance at two schools serving similar students so different? Is there a relationship between student attendance patterns, parental interest in school, and the socio-economic background of the students? What are the effects of teacher absenteeism on pupil performance? The grouping of similar schools provides a framework for studies which will

explore why differences occur. The answers to these and other questions could lead to major policy changes in the staffing of schools, in the utilization of specialized personnel, and in the in-service training of teachers.

One important set of decisions which should be influenced by the reports from the classification system are decisions relating to the budget and the allocation of resources. In February of each year, the comptroller sets in motion the budget process by sending to each department head a statement of the previous year's appropriations, the expenditures to date and projected expenditures for the remainder of the current year. The department head uses this information as the basis for the budget request for the following year. By mid-March, the department head submits his total budget, including a justification for any requested increase.

For approximately one month after budget requests are submitted by the department heads, the superintendent and his cabinet review the budget. The comptroller then requests a total amount to be approved by the board, and when approved, the board sets the tax levy (between March 15 and April 15). From that time until August, decisions are made about how the money will be spent. The final budget is presented by the school board in August for adoption.

When the classification system is operational, a series of reports will be produced at various times during the year. With the benefit of information contained in these reports, administrators throughout the Atlanta system will be able to focus on student characteristics and student performance when making decisions related to resource allocations.

For example, midway through the school year--in time for budget preparations--current data will be available on the student composition of the schools. The report will highlight changes in composition which may have occurred since the opening of school, as well as attendance patterns for the preceding months. Such data might strengthen arguments in favor of shifting personnel into certain schools or areas. By January, analyses of fall achievement test results will be available and could become an aid in identifying particular sections of the curriculum which could be bolstered through in-service training programs.

Knowledge about who the students are and how well they are performing is central in the design and implementation of new curriculum projects (like the Comprehensive Instructional Program)[2/] or the selection of schools, grades, and staff for special programs (like Follow-Through or Teacher Corps), or the assignment and scheduling of special staff (such as area resource teachers or visiting teachers). Many different parts of the school system are involved in the development and/or revision of curricula in Atlanta: system-wide curriculum committees, composed of administrators and teachers; coordinators from the instructional division working alone or with area resource teachers; area resource personnel upon request of a principal or area superintendent; members of the research and development staff, especially when federal funds are involved; and, from time to time, outside contractors.

2/ CIP is a locally funded program which, in 1970-71, focused on improving reading in Grades 1-3.

At present, decisions about curriculum development and implementation are made on the basis of the best available information and the professional judgment on the administrator involved. Much of the demographic data available to school personnel are woefully out of date (e.g. ten-year-old Census data). In other cases, data are not available to the administrator who must make the decision (e.g., the design of in-service training programs in the absence of data about the training and experience of the teachers who are to be the program participants). As the data contained in the classification system are more and more refined, Atlanta personnel will discover a valuable repository of current information about students and their needs, about the characteristics of the teaching staff of the schools, about the involvement of parents in the educational process, and other aspects of the educational process.

Still another area of school administration which might benefit from having regular, current information about school socio-economic composition and school performance is the recruitment and placement of instructional personnel. The present recruitment process in Atlanta extends throughout most of the school year and involves visits to over half of the 50 states. The recruitment drive is conducted primarily by the recruitment and placement staff and is supported by a recruitment committee made up of individuals throughout the school system. Most recruiting is done on college and university campuses and, to a lesser extent, at conventions. As a result, most teachers hired for the Atlanta school system are recent college or university graduates.

Because it is impossible to predict the exact staffing needs for the following year at the time recruitment takes place, relatively little effort can be made to match precisely the needs of the school system with the skills and interests of the applicants (except to determine whether the applicants are willing to teach in the inner city and to teach children of the opposite race). Reports produced through the classification system will provide information the recruiters can use to improve the match between the kinds of instructional personnel Atlanta students need and the talents of the prospective teachers.

Like recruitment, the placement of instructional staff is a continuous process in Atlanta. Not only must newly recruited teachers be assigned to schools, but vacancies must be filled whenever they occur. The assignment of teachers involves both the personnel division and the area superintendents. In the process, the central personnel staff receive a description of the vacancy: school, grade level, subject area (if applicable), and information on any special consideration involved in filling the vacancy (e.g., a particular curricular approach). Neither the characteristics of the students (their socio-economic status, mobility, attendance problems etc.) nor their performance (as revealed by achievement data or trends in attendance or attitudes toward school) enter the process of matching teachers and schools in any systematic way because these data are not available at the time the placement decisions are made.

Data provided through the classification system reports will give clues to needs of the students in a school. As a result, the school principal and the area office staffs will be better able to identify special skills needed by the teacher who fills a vacancy. With data

provided through the classification system, the principal and/or area office staff will be able to ask for a fifth grade teacher who has had special training in working with slow learners or for a fourth grade teacher who has had special training in teaching language arts.

The list of users and uses for data produced by the classification system will grow as the system is revised and refined.

CHAPTER III. A METHOD FOR IDENTIFYING SIMILAR SCHOOLS

This chapter describes a method for identifying schools which serve similar student populations. The technique of classifying schools should enable school personnel to make fair comparisons across schools in cases where there is a reasonable expectation that student or school performance will be similar.

The variables used to assign schools to classes or categories have at least two important elements: they are thought to have an effect on student performance, and they represent aspects of the educational process over which the school has little or no control. Since students are the raw material of education, a school system must tailor its programs to deal with the students as they are. Consequently, the classification process hinges on being able to describe the student population of a school quickly and accurately. Equally important, the procedure for classifying schools must be flexible enough to take into account the changes in the characteristics of the student population. Thus, the ideal method for describing the composition of the schools will utilize data which are collected centrally which are current, and which provide a description of the student population at any point in time.

Once a school is described in terms of its student population, it is assigned to an appropriate class or category. A category of schools is defined as a group of schools whose pupil populations have similar characteristics. In order to determine the appropriate boundaries for a school, the value of each classifying variable will be determined for each school. The exact number of categories and the boundaries for each category will be determined by the data for all schools.

A. Data in Atlanta

One of the first tasks for the Atlanta project was to determine which of the kinds of data collected on the student population could be used to identify schools with similar populations. To accomplish this task, we asked the Atlanta personnel two questions: 1) what data collected in Atlanta would be appropriate to use as descriptors of the student composition of a school; 2) how often are the data collected and by whom?

Atlanta, unlike many other urban school systems, maintains a central pupil record system. Each pupil is assigned a unique identification number. At present, however, the central pupil record system contains none of the data on student socio-economic status thought to be related to pupil performance; that is, there is no centrally recorded information on individual pupil economic status, on the education level of the parents, or on the occupational/employment status of the parents. Some demographic information is kept in the pupil's file at his own school, but such data are incomplete and inaccessible.

The absence of current, centrally available demographic information on individual students did not, however, pose an insurmountable problem for this project, since we were searching for data which could be used to describe the entire population of a school. Atlanta does collect, at regular intervals and school by school, data which can be used to describe the pupil population. We found that such data do exist, but not necessarily for that purpose. For example, it was pointed out that in conjunction with the school lunch program in Atlanta, a monthly computer print-out is prepared which shows--among other things--the total number of free, reduced, and regular priced lunches distributed at each school.

The print-out is prepared in order to obtain Federal reimbursement for the lunch program. However, in order to receive a free or reduced price lunch, the child must come from a family with an income below a specified amount. Thus, rate of participation in the free and reduced price lunch program at a school should be an indication of the economic composition of the school's student population. Because the school lunch data are computed every month, it is possible to obtain a very current indicator of school economic composition.

In order to determine the proportion of the student body at a school which is receiving free or reduced price lunches, the following calculation was made:

$$X = \frac{L_f + L_r}{N_d \times A}$$

X = the proportion of the school participating in the free and reduced price lunch program for any reporting period.

L_f = total number of free lunches distributed during any reporting period.

L_r = total number of reduced price lunches distributed during any reporting period.

N_d = number of days lunches were served during the reporting period.

A = average daily attendance for the reporting period.

The greater the value of X, the lower the economic level at that school. Thus, an indicator of the economic composition of each school is available at regular intervals throughout the year; an average for the year can be derived from the monthly figures.

A second independent variable suggested for use in classifying the schools in Atlanta was student mobility. Atlanta officials believe that student mobility is one important indicator of the difficulty of the task

facing the staff at a school. That is to say, the staff of a school in which the pupil population is stable throughout the year faces a different set of educational problems than does the staff of a school in which 75 percent of the children who enroll in September are not enrolled in May. In Atlanta, student mobility is calculated by school once a year. Mobility is defined as a measure of the movement of pupils into and out of the school during the school year related to an average active roll for the year. The mobility index for the current year is computed in late May.

The first attempt to identify groups of similar schools, which will be described in the next section, was based on the two variables, lunch participation and student mobility. There is, of course, nothing magic about these two variables in particular or the use of two variables as opposed to three or four or more. Atlanta does maintain information on the racial composition of its schools and certainly race could become a classifying variable. Since Atlanta has an extensive testing program, it would be possible to use performance on a pre-test for the purpose of classifying schools. These possibilities will be explored at a later date.

B. The First Attempt to Classify the Schools

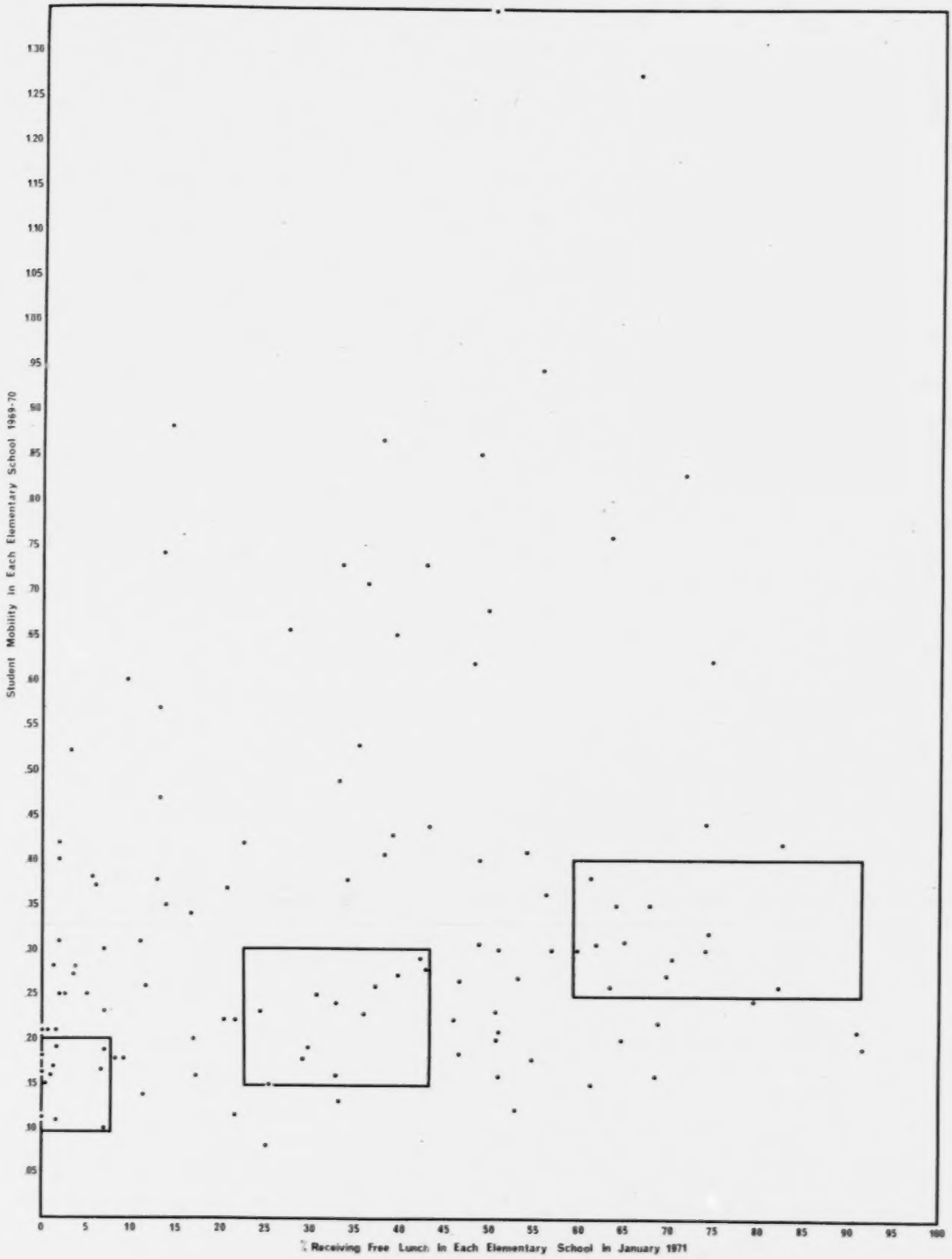
According to the "Memorandum of Understanding," work performed in the initial test of the school classification/management information system in Atlanta was to be limited to a sample of elementary schools. At first, Institute staff sought to obtain from Atlanta personnel their nominations for schools to be in the sample. This method did not prove altogether satisfactory, since varied criteria were used to nominate schools for inclusion in the sample.

Another method for picking the sample of schools was to ask the area superintendents to describe the pupil populations of their elementary schools. While this process was going on, Institute staff obtained data on elementary school mobility for the year 1969-70 and calculated the rates of participation in the school lunch program for January 1971. The idea was to plot the relationship between these two variables in the hope of identifying clusters of similar schools. It would then be possible to compare schools identified as similar by the use of these data with those schools identified as similar by the area superintendents, and so select schools for the sample.

The resulting scattergram showed student mobility on the vertical axis and participation in the January 1971 free lunch program along the horizontal axis. (See Table III-1). It had been expected that the Atlanta elementary schools, when described in terms of poverty and student mobility, would fall into several distinct categories, which would form the basis of the classification scheme. However, an inspection of the scattergram showed only one clearly identifiable cluster or group of schools--those with relatively low mobility and low participation in the free lunch program.

The measure of school economic composition used in the scattergram was the rate participation in the free lunch program at each school. Calculations were made solely on the basis of data contained in the cafeteria report for January 1971. January data were used because they were the most current data available and because January was the first month the lunch program had operated under the new U.S. Department of Agriculture regulations governing eligibility for the program.

Mobility and Free Lunch Participation in the
Atlanta Elementary Schools



It is important to note that only participation in the free lunch program was used in the first effort to group the schools, even though data on reduced price lunch participation were available for January 1971. At the time the scattergram was made, there was general agreement that free lunch participation was a reflection of low income, but there was no agreement on how to treat participation in the reduced price lunch program. That is, should a school which has 20 percent of its children receiving free lunches and 40 percent receiving reduced price lunches be treated as having the same economic composition as a school which has 60 percent of its children receiving free lunches and zero percent receiving reduced price lunches? An arbitrary decision was made to use only free lunch participation data, in this first try at grouping the schools. (As a result of this decision, at least one school in Group A of the initial 36 schools is clearly in the wrong category. School A 11 has a very low rate of free lunch participation, but a sizeable rate of participation in the reduced price lunch program.)

It had been decided to select three types of schools for the sample. From the outset, the sample was not intended to be representative of all schools in Atlanta, but only to include several very different types of schools. Schools with extremely mobile student populations were excluded from the sample on the grounds that very high mobility rates might unnecessarily complicate efforts at data collection and analysis in this experimental phase of the study. Some arbitrary decisions were made about the boundaries of the three groups of schools from which the sample would be drawn.

a. Student mobility - the average (mean) mobility for Atlanta elementary schools in 1969-70 was approximately .34. The boundaries for mobility of schools in Group A were defined as .10 to .20 (or relatively stable schools); for schools in Sample Group B as .15 to .30 (moderately stable); for schools in Group C as .25 to .40 (moderately mobile).

b. Free lunch participation - the elementary schools were ranked from highest to lowest participation in the free lunch program. The boundaries selected were as follows: the two deciles with the lowest free lunch participation rates were the boundaries of Group A schools (relatively high income schools); the 5th and 6th deciles were the boundaries for Group B schools (moderate income); the two deciles with the highest free lunch participation were the boundaries for Group C schools (low income).

Schools which met these sets of conditions fall into 3 groups:

Group A: (N=11) The most stable, high income schools.
Student mobility index .10-.20.
Free lunch participation 0%-6.8%.

Group B: (N=12) Moderately mobile, moderate income schools.
Student mobility index .15-.30.
Free lunch participation 22.5-43.0%.

Group C: (N=12) Most mobile and poorest of the 3 groups.
Student mobility .25-.40.
Free lunch participation 59.8%-92.3%.

These 35 schools are located in every area of the city. At the request of an area superintendent, one additional school was added to Group C. (The 36th school had a rate of free lunch participation comparable to schools in Group C, but had a slightly more stable student population). Table III-2 contains a list of the sample schools. The achievement analyses in Chapter IV covered these 36 schools. Site visits were made to 11 of the 36 schools, in order to obtain the views of principals and some teachers on appropriate measures of school performance and on the kinds of data needed in guiding the operations of an elementary school.

TABLE III-2

ATLANTA SCHOOL SYSTEM/URBAN INSTITUTE
SCHOOL CLASSIFICATION PROJECT

Mobility Index, 1969-70 and Free Lunch Participation, January, 1971

GROUP A: (Mobility Index-1969-70: .10-.20; free lunch participation, January 1971: 0%-6.8%) Total: 11

Birney
Brandon
*Continental Colony
Humphries
*Howell, Minnie
Jackson
McClatchey
Smith, S.R.
Tuxedo
*West Manor
Towns

GROUP B: (Mobility Index-1969-70: .15-.30; free lunch participation, January 1971: 22.5%-43.0%) Total: 12

Anderson Park
*Burgess
*Crogman
Dobbs
East Lake
Fountain
*Harper
Herndon
*Oglethorpe
Slater
Stanton
West Haven

GROUP C: (Mobility Index-1969-70: .25-.40; free lunch participation, January 1971: 59.8%-92.3%) Total: 12 (13)

Dunbar
English Avenue
Fowler
Gideons
*Gilbert
Guice
*Hardnett
Johnson
*Luckie
Pitts
Rusk
*Toomer
**Williams

* Schools visited by project staff during Phase I.
** Added at the request of the area superintendent.

C. Refinements in the Method of Grouping Schools

During the first attempt to group Atlanta's elementary schools according to their student composition, several problems were discovered, stemming from the fact that the data being used to describe the student population of a school were not originally collected for that purpose. Some of the practical problems encountered in converting existing data to new uses are described below. In most instances, inadequacies can be corrected with slight adjustments in the method of displaying the existing data.

1. Reporting Periods: A Technical Problem

Student average daily attendance (ADA) figures in the calculations used to determine the rate of participation in the school lunch program. Reports on student attendance and on school lunch participation are both designed in response to demands from outside the Atlanta schools (e.g., from the State Department of Education or from the U.S. Department of Agriculture). Both attendance and lunch participation are calculated at regular intervals during the school year. However, for the attendance reports, the year is divided into nine reporting periods of 20 days each, while the school lunch reports are prepared each month, or ten times during the year. The number of days in a school lunch reporting period vary. Hence, the two sets of reporting dates do not coincide, as illustrated in the following table:

Cafeteria Reporting Periods Ended:	Attendance Reporting Periods Ended:
September 25, 1970	September 28, 1970
October 23, 1970	October 26, 1970
November 20, 1970	November 24, 1970
December 18, 1970	January 8, 1971
January 22, 1971	February 8, 1971
February 19, 1971	March 9, 1971
March 19, 1971	April 7, 1971
April 23, 1971	May 7, 1971
May 21, 1971	June 4, 1971
June 30, 1971	

Although the computer print-out of each monthly cafeteria report contains an entry for ADA for each school listed, those figures for ADA were not used in the revised calculations of school lunch participation rates. The ADA reported in the cafeteria print-out is not always for the attendance reporting period which coincides most closely with the period for which lunch participation figures are being reported.

For the second round of attempts to classify the schools, the ADA figures used to compute lunch participation rates were selected so as to maximize the overlap between the attendance and lunch participation reporting periods. The result is a more accurate descriptor of school economic composition, although in no case were the two sets of figures for exactly the same time period.

2. Refinements in the Measure of School Economic Composition

It appeared from the preliminary attempt to identify similar schools that the use of free lunch participation alone as the measure of school economic composition was inadequate. Free lunch participation appears to understate the economic composition of a school, and so it was decided to include in the calculations participation in the reduced price lunch program. Since the objective was to develop an indicator of school

economic composition, it was decided that a more appropriate distinction was between those students who pay full price for lunch and those students whose family size and income entitle them to a subsidy.

No calculations for the new "combined" lunch participation rates were made for the months before January 1971, since the eligibility rules for the school lunch program were changed as of January 1, 1971. Figures for the rate of participation in the free and reduced price lunches were calculated for February and March 1971; these figures were averaged to produce a single number for each Atlanta elementary school. Table III-3 shows the frequency distribution of participation in the free and reduced lunch programs. There are eight schools in which

TABLE III - 3

COMBINED (FREE AND REDUCED) LUNCH PARTICIPATION - AVERAGE FOR 1971

PERCENT RECEIVING FREE AND REDUCED LUNCHES	NUMBER OF SCHOOLS	PERCENT OF TOTAL
109.9% - 100.0%	8	6.6%
99.9% - 90.0%	14	11.6%
89.9% - 80.0%	12	10.0%
79.9% - 70.0%	8	6.6%
69.9% - 60.0%	7	5.8%
59.9% - 50.0%	13	10.8%
49.9% - 40.0%	5	4.1%
39.9% - 30.0%	10	8.3%
29.9% - 20.0%	9	7.5%
19.9% - 10.0%	8	6.6%
9.9% - .0%	26	21.6%
	120	100.0%

Mean: 49.7%
Median: 51.25%

participation in the free and reduced price lunch programs exceed 100%. This apparent error in the calculations is due to several factors. First, as mentioned before, the reporting period for ADA and the reporting period during which the lunch program was operating do not coincide precisely. This can lead to some distortion in the results for the schools in which the average daily attendance varies considerably from month to month. Another important factor affecting the combined rate for lunch participation is that kindergarten students participate in the lunch programs, but are not counted in average daily attendance.

Participation in the free and reduced price lunch program should be regarded only as an approximate indicator of school economic composition and not as an exact descriptor of the student population.

3. Satellite Schools

Several of the smaller Atlanta elementary schools do not have cafeterias; hot lunches are brought to these satellite schools from a main kitchen at another school. The names of these satellite schools and the main kitchen which provides hot lunches to each are:

Hoke Smith	Toomer	Whittaker
Grant Park Primary	Drew	Bolton
Inman Park		English Avenue Primary
Milton		Haygood
Parks		Mt. Vernon
Walker		Mayson Primary
Cooper		

The existence of these satellite schools present several problems in calculating the participation rate in the school lunch programs. The statistics for lunch participation at the satellite schools appear in the monthly cafeteria print-out as a part of the total statistics for the school where the main kitchen is located. For example, the monthly

cafeteria report has no entry for Haygood Elementary but merges the statistics for Haygood into the totals for Whittaker. It was impossible to calculate lunch participation for the satellite schools directly from existing Atlanta reports. However, each month the cafeteria accounting department does receive a record of the number of lunches distributed at the satellite schools. These individual schools records are merged at the time they are keypunched; but the raw data are kept by the cafeteria accounting department. The calculations of lunch participation rates for the satellite schools had to be constructed from the original hand-written reports filed by the schools and not from the monthly computer print-outs.

4. Student Mobility

In the original attempt to identify similar schools, student mobility data for the 1969-70 school year had been used because they were the most recent mobility figures available. Atlanta calculates student mobility only once per year (in May of the school year in progress) and defines mobility as "the quotient obtained by dividing the averages of the active role for September and April into the total of the in and out transfers." This definition means that a school can have a mobility rate which exceeds 1.00 or 100%.

As soon as the mobility figures for 1970-71 became available, they were used in efforts to identify similar schools. Table III-4 shows the frequency distribution of student mobility in Atlanta elementary schools.

TABLE III - 4 STUDENT MOBILITY 1970-71

MOBILITY RATE FOR 1970-71	NUMBER OF SCHOOLS	PERCENT OF TOTAL
.99 - .90	1	.8%
.89 - .80	1	.8%
.79 - .70	3	2.5%
.69 - .60	6	5.0%
.59 - .50	9	7.5%
.49 - .40	14	11.6%
.39 - .30	23	19.1%
.29 - .20	23	19.1%
.19 - .10	29	24.1%
.09 - . 0	11	9.1%
	120	100.0%

Mean: .31
Median: .28

The availability of 1970-71 data on student mobility means that both variables used to identify similar schools describe the student population in the 1970-71 school year.

5. Primary Schools, Middle Schools, and Junior High Schools

Throughout this report, all data refer to an elementary school. Atlanta does have several schools which do not cover the grade span K thru 7, as do the ordinary elementary schools. There are several junior high schools (Grades 7 and 8), several middle schools (Grades 5, 6 and 7) and three primary schools (Grades K, 1, 2, and sometimes 3). It is this latter group that presents a minor problem for the data collection procedures.

The primary schools can be physically separated from the main elementary school and may enroll children who go on to one of several elementary schools. Atlanta does not have a consistent policy regarding the collection of data from the primary schools: sometimes the primary schools are

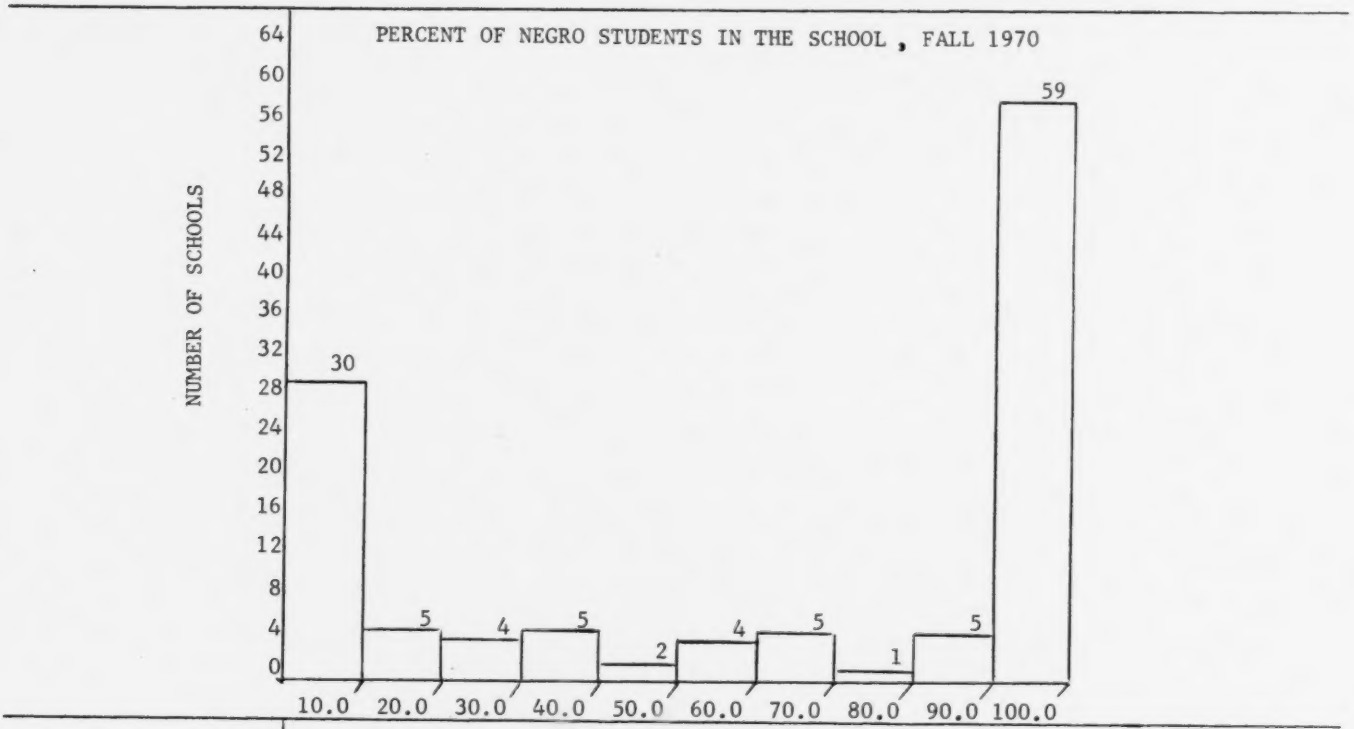
treated as separate units and at other times the data are merged into totals for the main elementary school. Throughout this report the primary school and the main elementary school are treated as a single reporting unit. This procedure is consistent for data on lunch participation, ADA, mobility, and race. In one instance, however, we know that the student composition of the primary school is different from the student composition of the main elementary school. As a result, the demographic data for that elementary school is distorted somewhat.

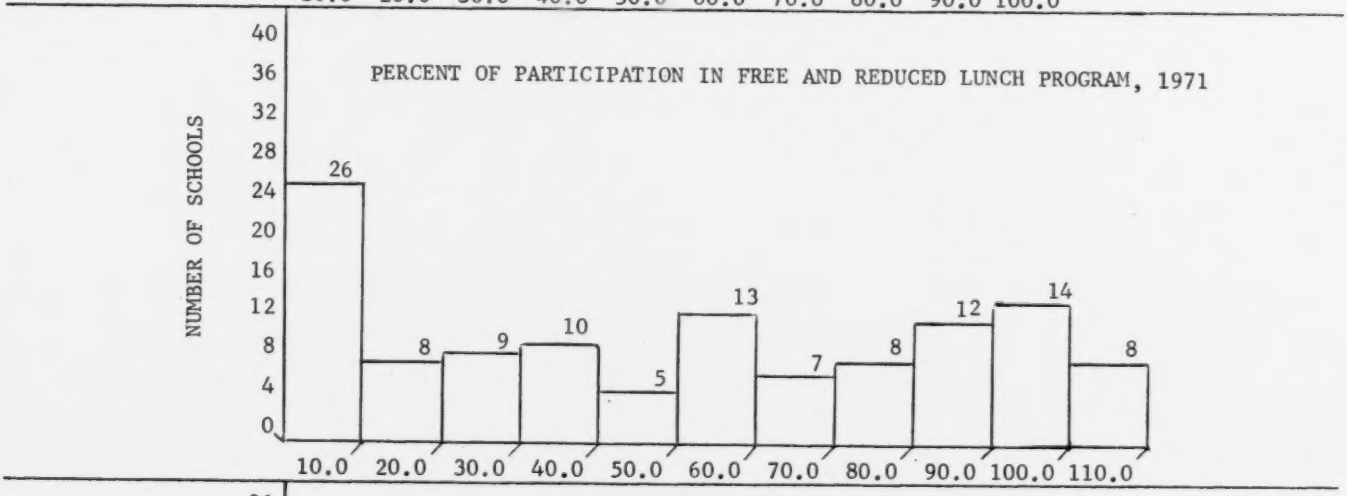
D. Alternative Ways to Classify Atlanta Elementary Schools

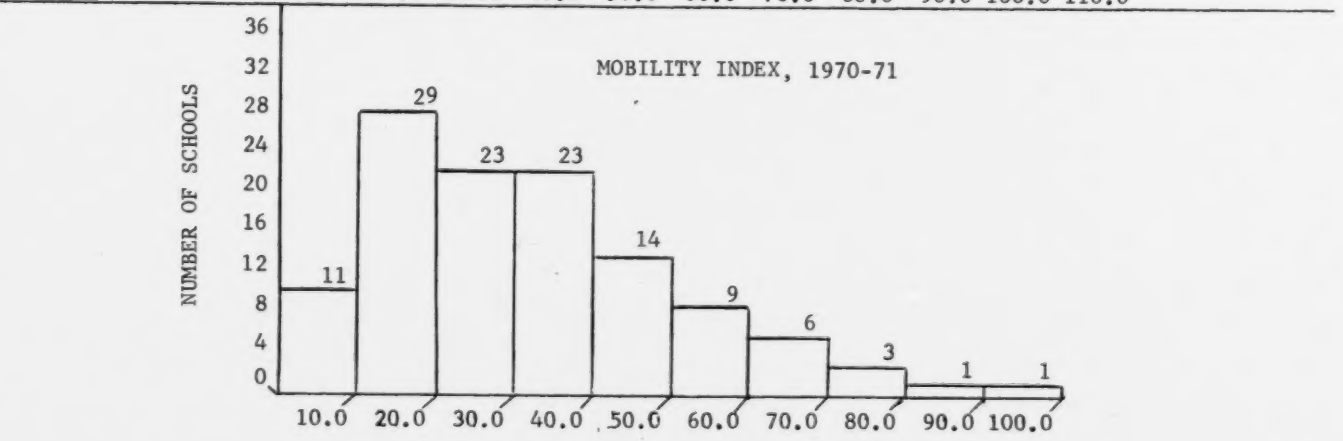
As has been explained, at least three descriptors of the student composition of Atlanta elementary schools are available for use in classifying the schools: student mobility during 1970-71; school lunch participation 1970-71; racial composition of the schools in September 1970. Table III-5 which follows is a series of histograms, showing the frequency distribution of Atlanta elementary schools on each of the three variables. The horizontal axis of each histogram divides the variable into intervals of 10 percent while the vertical axis indicates the number of elementary schools which fall within each 10 percent interval. The histograms reveal certain interesting facts about the composition of Atlanta elementary schools.

1. Student mobility. For the 120 elementary schools for which data are presented, the average mobility index is 31%. However, 75 elementary schools or 62% of the total fall within the 10-40% range and only 10% of the schools have a mobility index greater than 60%.

TABLE III - 5


PERCENT OF NEGRO STUDENTS IN THE SCHOOL , FALL 1970
NUMBER OF SCHOOLS
64
60
56
52
48
44
40
36
32
28
24
20
16
12
8
4
0
30
5
4
5
2
4
5
1
5
59
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0


PERCENT OF PARTICIPATION IN FREE AND REDUCED LUNCH PROGRAM, 1971
NUMBER OF SCHOOLS
40
36
32
28
24
20
16
12
8
4
0
26
8
9
10
5
13
7
8
12
14
8
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
110.0


MOBILITY INDEX, 1970-71
NUMBER OF SCHOOLS
36
32
28
24
20
16
12
8
4
0
11
29
23
23
14
9
6
3
1
1
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0

2. Lunch participation. The histogram for participation in the free and reduced price lunch program is very different from the mobility histogram. Approximately 20% of the elementary schools have less than 10% of their students receiving free or reduced price lunches. An almost equal number of schools (22) have more than 90% free and reduced lunch participation. The remaining 75 schools are spread out fairly even across the intervals between 10% and 90% participation in the special lunch programs.

3. Racial composition. The uppermost histogram shows the racial composition of the elementary schools expressed in terms of the proportion of Negro students at a school. Almost 75% of the elementary schools have student populations which are either under 10% Negro or over 90% Negro.

Lunch participation, mobility, and race can be used in several different combinations to group the schools. Three alternative schemes are presented on the following pages. In each, a school is assigned to a particular cell or class on the basis of its mobility index for 1970-71 and its rate of participation in the free and reduced price lunch programs for 1970-71. A minus (-) before the school name indicates a racial composition of 0-10% Negro, while a plus (+) indicates 90-100% Negro student population. The boundaries of the cells were chosen to insure a relatively even distribution of schools.

Alternative I. (See page 37.) The first attempt at a classification matrix takes the lunch participation variable and divides the distribution into four roughly equal parts. The frequency distribution for mobility is divided into three equal groups. The resulting matrix has 12 classes, varying in size from 6 to 16 schools.

Alternative II. (See page 38.) This classification matrix has 10 classes, but arrived at in a different manner. In Alternative II, the frequency distribution of lunch participation is divided into five equal groups. The distribution of student mobility is divided into two equal parts. This method of classifying schools results in a more even division of the 120 schools into classes which vary in size from 10 to 15 schools.

Alternative III. (See page 39.) The last example of a classification matrix is a refinement of Alternative II. It leaves unchanged the division of the schools into two categories of mobility. However, the schools are divided into six groups on the basis of lunch participation, further reducing the variation within any one category of schools.

These three alternatives are merely illustrative of simple techniques for grouping schools on the basis of environmental variables. Nothing about these examples is sacred. The variables used in the examples may not be the best predictors of performance, necessitating the development of alternatives. The number of groups of schools need not be 10 or 12. During subsequent work on this project, more sophisticated analytical techniques for grouping the schools will be tested. It is essential that the technique used produce reasonable homogeneous groups of schools, so that school officials feel that it is reasonable to compare performance within any one group.

ALTERNATIVE I CLASSIFICATION MATRIX

- = 0-10% Negro
+ = 90% Negro

MOBILITY 1970-71	15.9	50.9	85.9
40.0	-Bolton -Capitol View -Inman -Spring Venetian Hills Cascade -Mt. Vernon	-Benteen -Highland -Home Park -E.P. Howell -Lakewood -Lin Moreland Ragsdale Sylvan Hills -Waters -West	Adair Blair Village +Gilbert +Forrest Gordon -Grant Park Guice Haygood +Hill J. Jones Peeples	+Bryant +Butler +Capitol Avenue +J. Hope Inman Park Slaton
20.0	+Beecher Hills Ben Hill -Cleveland -Continental Colony -R.L. Hope M. Howell -Hutchinson Kimberly -Perkerson -Rivers -Rock Springs	-Brewer Dobbs Harper +Harris Peterson	Arkwright Chattahoochee Fowler Gideons Goldsmith +Hardnett +Herndon +J.M. Jones Luckie +Wesley +Carey	+Bethune Cook +Cooper +Dunbar +English +Fountain +Johnson +Mayson +Pitts +Pryor +Robinson +Williams +Scott +D.H. Stanton +Toomer Hubert
0	-Birney -Brandon -Garden Hills -Humphries -Jackson -McClatchey -Mitchell -Morningside +Peyton Forrest -S.R. Smith -Tuxedo +West Manor	+Clement +Connally +East Lake +Grove Park +Harwell +Kirkwood +Miles +Oglethorpe +F.L. Stanton +Towns +West Haven +Wright +Collier Heights	+Anderson Park +Burgess +Carter +Center Hill +Fain +Finch +M.A. Jones +White +Whitefoord	+Campbell +Craddock +Crogman +Reynolds Rusk +Slater +Walker +Ware

LUNCH PARTICIPATION

ALTERNATIVE II CLASSIFICATION MATRIX

- = 0-10% Negro
+ = 90% Negro

Ben Hill -Bolton Cascade -Cleveland -R.L. Hope M. Howell -Hutchinson -Mt. Vernon -Rock Springs -Spring Venetian Hills	-Benteen -Capitol View -Highland -Home Park -E.P. Howell -Inman -Lakewood -Lin Peterson Sylvan Hills -West	Adair Arkwright Blair Village Chattahoochee Dobbs Gordon Harper +Hill J. Jones Moreland Peeples Ragsdale -Waters	+Butler +Forrest Fowler Gideons +Gilbert Goldsmith -Grant Park Guice Haygood +Herndon +J. M. Jones +Scott	+Bryant +Capitol Avenue Cook +Cooper +J. Hope Inman Park +Pitts +Pryor Slaton +D.H. Stanton
+Beecher Hills -Birney -Brandon +Continental Colony -Garden Hills -Humphries -Jackson Kimberly -McClatchey -Mitchell -Morningside -Perkerson -Rivers -S.R. Smith -Tuxedo	-Brewer +Clement +Collier Hts. +Grove Park +Harwell +Kirkwood +Miles +Oglethorpe +Peyton Forrest -F.L. Stanton +West Haven +West Manor	+Anderson Park +Burgess +Carey +Center Hill +Connally +East Lake +Fain +Harris +Towns +White +Wright	+Campbell +Carter +Crogman +Dunbar +Finch +Fountain +Hardnett +M.A. Jones Luckie +Slater +Toomer +Wesley +Whitefoord	+Bethune +Craddock +English Hubert +Johnson +Mayson +Reynolds +Robinson Rusk +Walker +Ware +Williams

30.0

MOBILITY 1970-71

0

10.0 35.0 65.0 90.0

LUNCH PARTICIPATION

ALTERNATIVE III CLASSIFICATION MATRIX

- = 0-10% Negro
+ = 90% Negro

Ben Hill -Bolton Cascade -Cleveland -R.L. Hope M. Howell -Hutchinson -Mt. Vernon -Rock Springs -Spring Venetian Hills	-Benteen -Capitol View -Highland -Home Park -E.P. Howell -Inman -Lakewood -Lin Sylvan Hills -West	Dobbs Harper Moreland Peterson Ragsdale -Waters	Adair Arkwright Blair Village Chattahoochee Goldsmith Gordon Guice +Herndon +Hill J. Jones Peeples	+Butler +Forrest Fowler Gideons +Gilbert -Grant Park Haygood +J.M. Jones +Scott	+Bryant +Capitol Avenue Cook +Cooper +J. Hope Inman Park +Pitts +Pryor Slaton +D.H. Stanton
+Beecher Hills -Birney -Brandon -Continental Colony -Garden Hills -Humphries -Jackson Kimberly -McClatchey -Mitchell -Morningside -Perkerson -Rivers -S.R. Smith -Tuxedo	-Brewer +Collier Hts. +Grove Park +Harwell +Kirkwood +Peyton Forrest +West Manor	+Clement +Connally +East Lake +Miles +Oglethorpe +F.L. Stanton +Towns +West Haven +Wright	+Anderson Park +Burgess +Carey +Center Hill +Fain +Harris +M.A. Jones +White +Whitefoord	+Campbell +Carter +Crogman +Dunbar +Finch +Fountain +Hardnett Luckie +Slater +Toomer +Wesley	+Bethune +Craddock +English Hubert +Johnson +Mayson +Reynolds +Robinson Rusk +Walker +Ware +Williams

30.0

MOBILITY 1970-71

0

10.0 30.0 50.0 70.0 90.0

LUNCH PARTICIPATION

CHAPTER IV. THE USES OF ACHIEVEMENT TEST DATA

This chapter explores some possibilities for the use of achievement test data in decisions affecting Atlanta public schools. Examples are drawn from preliminary analyses of achievement data from 36 elementary schools.

A. Introduction

A stated purpose of the school classification system is to interject consideration of educational performance in a school system's decision-making process. Eventually, the school classification system will contain information on a variety of educational outcomes, but at present there is only a limited amount of data available centrally in Atlanta on all students or schools. The largest single source of data on student performance derives from the achievement testing program.

This report is concerned with the use of achievement data as a decision-making tool for Atlanta school administrators, not the use of achievement tests to diagnose individual student needs. Test results which use the school (or grade within a school) as the unit of observation shed light on where extra resources may be needed and can pinpoint potential trouble spots or identify successes. Achievement tests are not necessarily the best indicator of what is happening in the school system, but they are one indicator available now.

Atlanta, like most other school systems, has tended to limit the use of achievement test results to the counselling and guidance of individual students. But unlike most school systems, Atlanta has an extensive

achievement testing program. Twice each year, achievement test batteries are administered to elementary students in Grades 1-7. Only the test results from Grades 4-7 were in machine-readable form and readily available in time for use in the initial phase of this project. Students in those four grades were given alternate forms of the Metropolitan Achievement Test (MAT) battery in October 1970 and April 1971. The MAT consists of as many as 11 subtests which test achievement in different aspects of the curriculum. The subtests and grades in which they were given are shown in Table IV-1, below.

TABLE IV-1

	SUBTEST		GRADES TAKING SUBTEST
Test	01	Word Knowledge	4,5,6,7
	02	Reading	4,5,6,7
	03	Language Total	4,5,6,7
	04	Language Study Skills	5,6,7
	05	Arithmetic Computation	4,5,6,7
	06	Arithmetic Problem Solving and Concepts	4,5,6,7
	07	Social Studies Information	5,6,7
	08	Social Studies Study Skills	5,6,7
	09	Science	5,6,7
	10	Word Discrimination	4
	11	Spelling	4

The test results go relatively unused by school officials, except in student counselling. This is due in part to problems in getting the results processed and back to potential users quickly. Sometimes achievement results for the fall testing program have taken months to score. When results are available, a copy of the achievement scores for a particular school are made available to the school principal. Achievement results for all the schools within one of the five geographic subsystems are sent to the area office. Copies of achievement data for all schools are kept at the instructional service center and at the main administration building. However, we could find little evidence that these data are systematically analyzed or interpreted or play any significant part in decisions about staffing or curriculum.

The sections which follow give some examples of how achievement data, when analyzed on a school-by-school basis, might be used by administrators at various levels in the administrative structure. It is by no means an exhaustive list of possibilities. More work needs to be done to determine what can be learned from achievement test results.

B. Methodology Used in the Achievement Analyses

From the achievement test data made available by Atlanta, The Urban Institute created a data file for test results from the 36 schools identified by the procedures described in Chapter III. This master data file contained test results for fall 1970 and spring 1971 achievement tests given to students in Grades 4-7 of the 36 sample schools. Later, it became evident that data for Grade 4 on the tape sent from Atlanta was incomplete. A complete set of Grade 4 data was subsequently provided, but

not in time to be included in the analyses used in this report. Consequently, the discussions which follow are restricted to Grades 5, 6 and 7.

The analyses performed on the achievement data are built around the three classes (A,B, and C) into which the 36 schools had been grouped. A method was devised for displaying the achievement data in ways that would (1) describe the distribution of achievement test scores for a particular grade within a school, (2) relate achievement among schools within a class, and (3) indicate changes in the distribution of achievement scores from fall to spring.

Grade equivalent scores are used consistently throughout this report. Achievement data were supplied by Atlanta in two forms: grade equivalent scores and raw scores (which indicate only the number of right answers). Raw scores by themselves are not useful for analytical purposes, since each subtest has a different number of questions. Each achievement subtest has a minimum and maximum grade equivalent score. For all subtests in Grades 5,6 and 7 the maximum or top score is 10.0. For all but one subtest (arithmetic computation in Grade 7) the minimum score is 3.0; for Grade 7 arithmetic computation, the minimum score is 3.6. Grade equivalent scores are usually expressed in intervals of .1, which represents one month of "achievement." However, the computer program was written so that whenever a series of grade equivalent scores were averaged to yield a "mean" value, that score was carried out to two decimal places (e.g. 6.36).

The analyses were performed for each class of schools (called A, and B), for each school within a class (school code numbers were used in the analysis, but not in this report), for each grade within the school (Grades 5, 6, and 7 only), for each subtest of the MAT, for the fall 1970

test results, and for the spring 1971 test results. By subtracting fall 1970 scores from spring 1971 scores, the computer produced a new set of data called "Gain from Fall to Spring." It is important to note that all of the data described the achievement status of an entire grade within a school--never the achievement of a particular student.

The distribution of achievement is described by means of six key statistics on the achievement curve:

Mean--the arithmetic average of achievement scores in the grade on any single subtest.

D_1 (lowest decile) - the bottom 10% of the students in the grade were at or below this score.

Q_1 (lowest quartile) - the bottom 25% of the students in the grade were at or below this score.

Q_2 (median) - 50% of the students in the grade were below this score and 50% were above it.

Q_3 (third quartile) - 75% of the students in the grade were at or below this score.

D_9 (highest decile) - 90% of the students in the grade were at or below this score.

The computer print-outs show the value of some or all of these statistics for each school in a group, with a summary line showing the average for all schools in that group. With these statistics, it is possible to describe how different types of children in the same grade perform on any given subtest. For example, D_1 shows how the slowest learners in a class are doing, Q_2 shows the achievement level which divides the students into two equal groups, while Q_3 and D_9 show how well the students at the top of a grade perform.

As a measure of how closely the schools in a class were grouped in achievement, the standard deviation (labelled "sigma" on the print-outs) for each statistic was computed. The standard deviation is used as a crude test to identify the schools in which performance was significantly above or below the average performance of the schools in that category. The computer program is written to flag each school in which either the first quartile or the mean statistic is more than one standard deviation above or below the average of that statistic. Approximately one-third of the quartiles or means for schools in a category will be flagged as significantly better or worse than average.

In an attempt to shed some light on the effect of mobility on achievement test performance, three types of students were identified: 1) all: students for whom there were at least some achievement results on the tape file; 2) non-movers: those students for whom there were achievement test records in October 1970 and April 1971 at the same school; 3) movers: those students for whom there was only one set of achievement records (either fall or spring). There are no gain scores for movers, since the scores for fall 1970 and those for spring 1971 represent, by definition, two different groups of students.

Several different means of displaying achievement data were developed. One set of computer print-outs shows the distribution of achievement on each subtest for each grade by individual school, as well as the mean (average) performance for all schools in the group. Another set of print-outs shows the mean (average) achievement by category of schools and for individual schools within a category on four subtests: reading, arithmetic problem solving, social studies and science. All computer

print-outs are available for all students, for non-movers and for movers for each of the two testing periods.

Before beginning a discussion of some of the possible ways to organize and interpret the data, several points should be stressed. Most importantly, the analyses which follow serve merely to illustrate how data from the classification system might be used. The achievement data which appear in the next sections of this chapter are actual data from the 36 schools. However, the reliability of statements about the relative performance of the sample schools should be tempered by the knowledge that the original variables used to group the 36 schools into Category A, B, or C were only crude indicators of school composition. When the original data used to classify the schools were revised (see Chapter III), it became apparent that some schools had been wrongly assigned to a category. The differences in the composition of schools in Groups B and C are less well defined than originally appeared.

Since the creation of the achievement data file had begun before more current data on student mobility or more accurate school lunch participation data were available, the original composition of Groups A, B, and C was maintained. Table IV-2, which follows, describes each of the 36 schools in terms of 1970-71 data on lunch participation, student mobility and racial composition. The last three columns on Table IV-2 show the percent of attendance in the grades for which achievement results are presented. In subsequent phases of this project, data on resources, staff and staff characteristics, special programs, etc. will be assembled for each school. Unfortunately, it was not possible to obtain such information in time to be used in this report.

TABLE IV-2: SELECTED DESCRIPTORS OF SCHOOL COMPOSITIONS, 1970-71

SCHOOL NUMBER	PERCENT FREE LUNCH	PERCENT REDUCED PRICE LUNCH	PERCENT FREE AND REDUCED	MOBILITY	PERCENT NEGRO	PERCENT OF ATTENDANCE BY GRADE		
						GRADE 5	GRADE 6	GRADE 7
A 1	7.5	1.3	8.8	.32	16	93.7	94.7	93.0
A 2	2.9	2.0	4.9	.15	0	94.2	94.2	92.0
A 3	1.1	0.0	1.1	.06	9	96.7	96.2	93.0
A 4	0.0	0.0	0.0	.08	0	96.7	95.0	94.2
A 5	0.6	0.4	1.0	.11	7	94.0	94.0	94.2
A 6	2.1	0.0	2.1	.19	0	95.3	93.5	94.5
A 7	0.2	0.0	0.2	.15	1	93.5	95.2	90.2
A 8	1.3	0.0	1.3	.13	0	95.5	92.7	94.2
A 9	1.1	2.1	3.2	.26	6	95.0	96.0	96.2
A10	8.6	2.2	10.8	.05	98	97.5	94.0	95.7
A11	8.1	37.4	45.5	.09	99	95.7	94.6	93.5
GROUP A AVERAGE	3.0	4.4	7.1	.14	21	95.2	94.5	93.7

TABLE IV-2: SELECTED DESCRIPTORS OF SCHOOL COMPOSITIONS, 1970-71

SCHOOL NUMBER	PERCENT FREE LUNCH	PERCENT REDUCED PRICE LUNCH	PERCENT FREE AND REDUCED	MOBILITY	PERCENT NEGRO	PERCENT OF ATTENDANCE BY GRADE		
						GRADE 5	GRADE 6	GRADE 7
B 1	38.3	30.0	68.3	.30	100	90.7	92.5	90.7
B 2	29.1	4.3	33.4	.11	100	94.2	94.0	97.0
B 3	28.3	6.6	34.9	.09	99	93.7	92.0	94.7
B 4	36.4	13.5	49.9	.31	76	91.2	89.2	86.0
B 5	45.9	41.8	87.7	.12	100	92.2	94.5	93.7
B 6	32.9	7.7	40.6	.39	85	88.2	89.7	86.7
B 7	48.8	12.4	61.2	.09	100	93.2	91.5	93.2
B 8	27.7	4.1	31.8	.13	100	91.7	94.0	96.5
B 9	48.6	2.6	51.2	.20	95	93.7	93.7	93.5
B10	35.1	2.9	38.0	.19	98	93.2	94.0	----
B11	46.0	35.6	81.6	.17	100	91.7	94.2	----
B12	65.3	21.1	86.4	.21	99	92.2	94.7	----
GROUP B AVERAGE	40.0	15.2	55.4	.21	96	92.1	92.8	92.4

TABLE IV-2: SELECTED DESCRIPTORS OF SCHOOL COMPOSITIONS, 1970-71

SCHOOL NUMBER	PERCENT FREE LUNCH	PERCENT REDUCED PRICE LUNCH	PERCENT FREE AND REDUCED	MOBILITY	PERCENT NEGRO	PERCENT OF ATTENDANCE BY GRADE		
						GRADE 5	GRADE 6	GRADE 7
C 1	66.1	12.0	78.1	.35	38	89.5	92.2	82.8
C 2	70.4	3.6	74.0	.22	32	91.2	89.2	88.5
C 3	68.1	22.2	90.3	.22	99	89.5	92.0	88.7
C 4	76.0	2.7	78.7	.29	95	94.5	92.0	90.2
C 5	86.8	7.2	94.0	.19	89	93.7	89.0	90.5
C 6	79.4	5.8	85.2	.37	94	89.5	89.7	86.7
C 7	68.5	0.2	68.7	.67	60	83.7	88.7	83.2
C 8	65.7	12.1	77.8	.36	87	89.0	90.0	90.2
C 9	94.2	4.0	98.2	.35	99	84.5	85.0	85.0
C10	96.4	0.9	97.3	.24	97	90.5	91.0	91.2
C11	76.7	12.1	88.8	.26	100	88.5	95.5	89.2
C12	67.0	23.6	90.6	.28	97	93.5	93.5	90.7
C12	48.2	39.4	87.6	.28	100	94.2	----	----
GROUP C AVERAGE	81.8	11.2	85.3	.31	83	90.1	89.9	88.0

The analyses which follow are based on the assumption that it is reasonable to compare the achievement results for schools within Group A, B, or C, and that those results can be used as indicators of school/student needs in the allocation of resources. Since the volume of achievement data for the 36 schools is quite large, excerpts from the computer print-outs are presented as examples of how the data might be organized and interpreted for use by school officials.

C. Sample Analysis #1: Comparison of Achievement Among Groups of Schools

One of the first issues investigated was the extent to which the level of achievement differed among groups of schools with presumably different socio-economic composition. Table IV-3 and IV-4 present summary statistics for the three groups of schools. Four areas of the curriculum are reported on, by using the results of four different sub-tests. Table IV-3 presents data on mean (average) achievement in Grades 5, 6, and 7 in the fall of 1970 and in the spring of 1971. Table IV-4 presents similar data on the average performance of the lowest 25% (Q_1) of each grade. The possible range of achievement on each subtest and each grade is from a score 3.0 to 10.0.

Several observations result from an examination of these tables. First, given the different socio-economic compositions of groups A, B, and C, we expected to find that the average achievement level of group A schools would be higher than group B schools which would be higher than group C schools. The data in Tables IV-3 and IV-4 bear out this expectation, although the difference between schools in group B and schools in group C is less pronounced than differences between B schools and A schools. Looking across the four tests, mean achievement in Grades 5, 6, and 7 tends to have been lowest in reading (Test 2) in the fall of 1970, but

TABLE IV-3: MEAN ACHIEVEMENT (GRADE EQUIVALENT SCORES) BY SCHOOL CLASSIFICATION FOR ALL STUDENTS TESTED 1970-1791

GRADE	CLASS	READING (02)			ARITHMETIC PROBLEM SOLVING (06)			SOCIAL STUDIES SKILLS (08)			SCIENCE (09)		
		FALL 1970	SPRING 1971	GAIN	FALL 1970	SPRING 1971	GAIN	FALL 1970	SPRING 1971	GAIN	FALL 1970	SPRING 1971	GAIN
Grade 5	A	5.6	6.3	0.7	5.3	5.8	0.5	5.4	6.2	0.8	5.5	6.3	0.8
	B	3.8	4.3	0.5	4.2	4.4	0.2	3.8	4.3	0.5	3.9	4.4	0.5
	C	3.5	4.0	0.5	4.1	4.3	0.2	3.8	4.1	0.3	3.8	4.2	0.4
Grade 6	A	6.4	7.0	0.6	6.2	6.6	0.4	6.3	7.0	0.7	6.3	6.7	0.4
	B	4.3	4.6	0.3	4.6	4.8	0.2	4.5	4.5	0.0	4.5	4.9	0.4
	C	4.1	4.4	0.3	4.6	4.7	0.1	4.2	4.4	0.2	4.4	4.5	0.1
Grade 7	A	7.3	7.9	0.6	7.2	7.7	0.5	7.0	7.6	0.6	7.3	7.8	0.5
	B	5.0	5.5	0.5	5.6	6.0	0.4	5.0	5.4	0.4	5.1	5.9	0.8
	C	4.3	4.8	0.5	5.4	5.9	0.5	4.6	5.0	0.4	4.8	5.3	0.5

CLASS A = 11 schools
CLASS B = 12 schools
CLASS C = 13 schools

TABLE IV-4: AVERAGE FIRST QUARTILE (Q_1) ACHIEVEMENT BY SCHOOL CLASSIFICATION FOR ALL STUDENTS TESTED 1970-1971

GRADE	CLASS	READING (02)			ARITHMETIC PROBLEM SOLVING (06)			SOCIAL STUDIES SKILLS (08)			SCIENCE (09)		
		FALL 1970	SPRING 1971	GAIN	FALL 1970	SPRING 1971	GAIN	FALL 1970	SPRING 1971	GAIN	FALL 1970	SPRING 1971	GAIN
Grade 5	A	4.4	4.8	0.4	4.6	5.1	0.5	4.1	4.9	0.8	4.6	5.2	0.6
	B	3.1	3.3	0.2	3.7	4.0	0.3	3.1	3.6	0.5	3.3	3.7	0.4
	C	3.0	3.2	0.2	3.7	3.8	0.1	3.2	3.4	0.2	3.2	3.5	0.3
Grade 6	A	5.0	5.3	0.3	5.4	5.6	0.2	4.9	5.4	0.5	5.3	5.6	0.3
	B	3.4	3.4	0.0	4.0	4.1	0.1	3.6	3.6	0.0	3.8	3.8	0.0
	C	3.2	3.3	0.1	4.0	4.0	0.0	3.4	3.6	0.2	3.7	3.5	-.2
Grade 7	A	5.9	6.7	0.8	6.2	6.8	0.6	5.4	6.0	0.6	6.2	6.8	0.6
	B	3.7	4.2	0.5	4.8	5.3	0.4	4.1	4.4	0.3	4.2	4.8	0.6
	C	3.4	3.8	0.4	4.6	5.1	0.5	3.8	4.2	0.4	4.1	4.5	0.4

CLASS A = 11 schools
CLASS B = 12 schools
CLASS C = 13 schools

not necessarily in the spring. For the lowest 25 percent of Grades 5, 6, and 7, achievement levels in reading fell below achievement on the other subtests in both test periods. On the other hand, arithmetic achievement levels are consistently higher for all grades and all three groups of schools.

Achievement data like these, especially if calculated in a uniform manner over a period of years, could become an ingredient in determining which areas of the curriculum or which grade levels or which kinds of schools should receive special attention. For example, using the results on the reading subtest shown on Table IV-4, a case could be made for the development of special in-service training workshops for 5th and 6th grade teachers in B and C schools. The workshops might focus on skills needed to teach slow readers.

D. Sample Analysis #2: Use of Achievement Data to Identify Performance Significantly Above or Below Average

A key use of achievement data in decision-making is in the allocation of staff or resources to particular schools. By comparing achievement in similar schools, it is possible to identify the particular schools and grades in which performance is significantly above or below the average for each group of schools. Table IV-5 and IV-6 illustrate this for one area of the curriculum, arithmetic. Table IV-5 deals only with fall 1970 performance on the two subtests which deal with arithmetic; Table IV-6 presents similar information about the performance in spring 1971 for each school and each category.

TABLE IV-5: HIGH AND LOW PERFORMANCE IN ARITHMETIC
FALL 1970 ACHIEVEMENT BY INDIVIDUAL SCHOOL AND BY CATEGORY

FALL 1970 GROUP A	MEAN ACHIEVEMENT						Q_1 ACHIEVEMENT					
	GRADE 5		GRADE 6		GRADE 7		GRADE 5		GRADE 6		GRADE 7	
	TEST 5	TEST 6	TEST 5	TEST 6	TEST 5	TEST 6	TEST 5	TEST 6	TEST 5	TEST 6	TEST 5	TEST 6
A 1												
A 2		-							-			
A 3			+	+								
A 4		+					+	+				
A 5					+	+						+
A 6												
A 7	+						+					
A 8		+				+						
A 9			+									
A10	-	-		-	-	-	-	-		-	--	-
A11	--	-	--	--	-	--	-	-	--	--	-	-
GROUP A AVERAGE	5.1	5.3	6.0	6.2	6.7	7.2	4.7	4.6	5.4	5.4	6.1	6.2
GROUP B												
B 1											++	
B 2	+	+			+	++	+			+		+
B 3												
B 4					-		--				-	
B 5		-	-	-	-	-		--	-		-	-
B 6	+	+		+			+	+		-	+	
B 7	+	+	+	+			+			+		-
B 8		+	+	++		+			++	+		+
B 9			-				+		-		-	-
B10												
B11		-		-					-	--		
B12												
GROUP B AVERAGE	4.6	4.2	5.0	4.6	5.7	5.6	4.3	3.7	4.6	4.0	5.2	4.8
GROUP C												
C 1	++	++	++	++	++	++	++	+	++	++	++	+
C 2		+	+			+		+	+		+	+
C 3				-						-		
C 4								+			-	
C 5	+						+					-
C 6												
C 7												
C 8					+							
C 9	-					-						-
C10		-						-				-
C11		-						-				
C12	-						--	-	-			-
C13												
GROUP C AVERAGE	4.5	4.1	5.0	4.6	5.6	5.4	4.1	3.7	4.6	4.0	5.2	4.6

KEY

TEST 5=Arithmetic Computation
TEST 6=Arithmetic Problem Solving

+ or ++ = Performance significantly above for the class as a whole.
- or -- = Performance significantly below average for the class as a whole.

TABLE IV-6: HIGH AND LOW PERFORMANCE IN ARITHMETIC
SPRING 1971 ACHIEVEMENT BY INDIVIDUAL SCHOOL AND BY CATEGORY

SPRING 1971	MEAN ACHIEVEMENT						Q_1 ACHIEVEMENT					
	GRADE 5		GRADE 6		GRADE 7		GRADE 5		GRADE 6		GRADE 7	
GROUP A	TEST 5	TEST 6	TEST 5	TEST 6	TEST 5	TEST 6	TEST 5	TEST 6	TEST 5	TEST 6	TEST 5	TEST 6
A 1	+						+					
A 2	-	-	-				-	-				
A 3												
A 4		+						+				
A 5												
A 6					+						+	
A 7	+	+			+	+	+				+	+
A 8		+					+	+			+	
A 9				+					+	+		
A10	-	-		-	-	-	-	-		-	-	-
A11	-	-	--	--	-	--	-	-	--	--	-	-
GROUP A AVERAGE	5.8	5.8	6.5	6.6	7.4	7.7	5.2	5.1	5.8	5.6	6.6	6.8
GROUP B												
B 1	-						-					
B 2					+	+	+					+
B 3												
B 4			+				-		+			
B 5			-	-	-	-			-		-	-
B 6		+	+		+						+	+
B 7				+						+		
B 8	++	++	+	++	+	+	++	++	+	++	+	+
B 9			-	-	-				-		-	
B10								+				
B11		-					-	-	-			
B12												
GROUP B AVERAGE	4.9	4.4	5.3	4.8	6.2	6.0	4.4	3.9	4.8	4.1	5.6	5.3
GROUP C												
C 1	+	+	++	++	++	++	+	+	+	++	++	+
C 2		+	+	+			+	+	+	+		+
C 3												
C 4		-			-		+		+		-	-
C 5	+						+					
C 6							+		-			
C 7								-				
C 8												
C 9	+								-			
C10	-						-					-
C11	-	-	-	-								
C12												-
C13												
GROUP C AVERAGE	4.7	4.3	5.2	4.7	6.0	5.9	4.3	3.8	4.6	4.0	5.4	5.1

KEY
TEST 5=Arithmetic Computation
TEST 5=Arithmetic Problem Solving

+ or ++ = Performance significantly above for the class as a whole.
- or -- = Performance significantly below average for the class as a whole.

The data on these two tables should be of particular interest to personnel at the instructional services center and in the area offices who are concerned with the development of special curriculum, the design of teacher training programs, and the selection of sites for new programs. For example, let us assume it was necessary to decide which of the 36 schools in this study should be singled out for special help in arithmetic at Grades 5-7 during school year 1971-72. Further, let us assume that this question was first discussed during the spring of 1971 and that a final decision was made during the summer of 1971.

Table IV-5, which presents the results of the fall 1970 testing would have provided the first clues for the initial discussions of which schools to help. On the basis of the fall test results, 11 schools were having some trouble with either arithmetic computation or arithmetic problem solving skills. The 11 schools were:

A 2	B11
A10	C 3
A11	C 9
B 4	C10
B 5	C11
B 9	

It is important to note that it is rare for all three grades in the same school to be having trouble with arithmetic; much more common is a situation in which one or perhaps two grades appear to be having some problem with the arithmetic skills measured by the Metropolitan Achievement Test. It should also be noted that in many cases on Table IV-5, the difficulty occurs at either the mean or Q_1 and not both. This appears to indicate that students in the bottom quarter of the grade encounter a different set of problems with arithmetic than the "average" student in these 11 schools. The knowledge that some or all Grades 5, 6, and 7 in

the 11 schools are having difficulty with arithmetic can be used in several different ways: 1) some immediate help from area resource teachers or curriculum coordinators might have been given those schools during spring 1971; and/or 2) those schools could be regarded as prime candidates for a special arithmetic program next year.

The spring test results, which are available by early summer can be used in final decisions about which schools, which grade levels and which type of students should be singled out for help during the coming year. For example, the spring test results show 15 schools in which performance at one or more grade levels is significantly below average; nine of the schools performing poorly in the fall are also on the spring list and six are new to the list. In group C, students in the lowest quartile of grades in seven different schools experienced difficulty in arithmetic. This situation might indicate that the weakest arithmetic students in group C schools should be singled out for special attention. In school A 11, arithmetic performance is low in every grade; the actual scores for this school are far below most schools in group B.

With the computer programs developed for this study, it is possible to develop tables similar to the ones discussed above for every sub-test and for every grade level. The same computer program flags performance that is significantly better than average for each group of schools. For example, school B 8 and school C 1 score consistently above average in every grade. What accounts for these differences in performance is certainly an important question to explore. Is it due to the teacher, or the students, or the particular curriculum approach, or the climate at the school, or perhaps something else? In the case of a school in which only

one grade is performing either well above or well below average, the performance may be due to the teacher(s) in that grade. After the classification system is in use for several years, it will be possible to watch the performance of different groups of students under the same teacher. When several grades in the same school experience either success or difficulty with a subject area regardless of the teacher, then other explanations for the performance will have to be sought.

E. Sample Analysis #3: Achievement Performance of Schools Within the Same Category

Achievement data can also be used to answer the question, "How well have the schools done this year in a particular area of the curriculum?" Atlanta has placed great effort during the school year just ended on the improvement of reading in Grades 1-3. While no achievement test data for those grades are included in this study, it is possible to examine reading performance in Grades 5-7 in the sample schools to see what changes occurred during this past year.

Tables IV 7-9 show the fall and spring achievement scores on the reading subtest for each school in group B. The tables indicate the value of D_1, Q_1, Q_2 (median), Q_3, and D_9 at each school. Comparable tables could have been prepared for each subtest or for each group of schools. Group B schools were chosen merely to illustrate what can be learned from these statistics about reading performance in a group of similar schools. The reader should keep in mind that 3.0 is the minimum score on this subtest and 10.0, the maximum score. The fall scores indicate where the students were at the beginning of the year.

TABLE IV-7: ACHIEVEMENT IN READING FOR ALL STUDENTS IN GROUP B SCHOOLS, GRADE 5

GROUP B	FALL 1970					SPRING 1971				
	D_1	Q_1	Q_2	Q_3	D_9	D_1	Q_1	Q_2	Q_3	D_9
B 1	3.0	3.0	3.1	3.8	4.2	3.0	3.0	3.5	4.4	5.1
B 2	3.0	3.1	3.5	4.5	6.3	3.0	3.3	4.0	6.1	9.2
B 3	3.0	3.1	3.7	4.7	5.1	3.0	3.1	3.7	4.9	5.1
B 4	3.0	3.0	3.1	3.5	4.2	3.0	3.3	3.7	4.7	5.7
B 5	3.0	3.0	3.3	4.0	4.5	3.0	3.1	3.7	4.5	5.7
B 6	3.0	3.3	3.8	4.5	5.3	3.0	3.5	4.4	5.1	6.6
B 7	3.0	3.3	3.8	4.5	5.3	3.1	3.8	4.7	5.9	6.6
B 8	3.0	3.3	3.8	4.7	5.7	3.7	4.0	4.7	5.7	7.1
B 9	3.0	3.0	3.5	4.0	4.4	3.0	3.3	4.0	4.7	5.1
B10	3.0	3.0	3.3	3.7	4.5	3.0	3.1	3.7	4.5	5.7
B11	3.0	3.0	3.3	3.8	4.2	3.0	3.0	3.5	4.0	4.5
B12	3.0	3.0	3.5	3.8	4.5	3.0	3.1	3.7	4.5	5.1
MEAN	3.00	3.09	3.47	4.12	4.85	3.07	3.30	3.94	4.92	5.96
SIGMA	(.00)	(.13)	(.25)	(.41)	(.65)	(.19)	(.31)	(.41)	(.63)	(1.22)

TABLE IV-8: ACHIEVEMENT IN READING FOR ALL STUDENTS IN GROUP B SCHOOLS, GRADE 6

GROUP B	FALL 1970					SPRING 1971				
	D_1	Q_1	Q_2	Q_3	D_9	D_1	Q_1	Q_2	Q_3	D_9
B 1	3.0	3.5	4.0	5.1	5.7	3.0	3.5	4.2	4.7	5.9
B 2	3.0	3.5	4.0	5.7	6.8	3.0	3.1	4.4	5.5	6.6
B 3	3.0	3.5	4.0	5.3	5.7	3.0	3.5	4.4	5.1	6.1
B 4	3.3	3.7	4.0	5.1	5.9	3.1	3.5	4.4	5.3	6.6
B 5	3.0	3.1	3.7	4.4	5.5	3.0	3.1	3.8	4.7	5.9
B 6	3.0	3.3	3.8	4.7	5.5	3.1	3.5	4.5	5.3	6.1
B 7	3.1	3.3	3.8	4.9	6.1	3.0	3.5	4.5	5.3	5.9
B 8	3.7	3.7	4.0	5.5	7.1	3.7	4.4	5.1	6.3	8.7
B 9	3.0	3.1	3.8	4.4	4.7	3.0	3.3	3.8	4.7	5.5
B10	3.1	3.5	4.0	4.9	6.1	3.0	3.5	4.4	5.3	6.3
B11	3.0	3.1	3.5	4.7	6.3	3.0	3.1	4.2	5.1	6.3
B12	3.0	3.1	3.7	4.7	5.9	3.0	3.1	3.8	4.9	6.3
MEAN	3.10	3.37	3.86	4.95	5.94	3.07	3.42	4.29	5.18	6.35
SIGMA	(.20)	(.22)	(.16)	(.39)	(.60)	(0.19)	(0.34)	(0.36)	(0.43)	(0.77)

TABLE IV-9: ACHIEVEMENT IN READING FOR ALL STUDENTS IN GROUP B SCHOOLS, GRADE 7

GROUP B	FALL 1970					SPRING 1971				
	D_1	Q_1	Q_2	Q_3	D_9	D_1	Q_1	Q_2	Q_3	D_9
B 1	3.2	3.5	4.2	5.3	7.1	3.5	3.8	4.7	5.7	8.0
B 2	3.8	4.2	5.7	8.3	10.0	4.2	5.1	6.0	8.8	10.0
B 3	3.2	3.3	4.2	5.7	6.8	3.3	4.2	4.9	6.3	8.0
B 4	3.5	3.8	4.4	5.5	6.3	3.5	4.2	5.1	6.0	7.1
B 5	3.0	3.3	3.8	4.7	6.6	3.2	3.5	4.2	5.1	7.3
B 6	3.3	4.0	4.7	6.0	7.1	3.8	4.2	4.9	6.3	8.0
B 7	3.3	3.8	4.4	5.5	7.3	3.3	3.8	4.7	5.7	7.3
B 8	3.0	3.5	4.9	6.6	7.7	3.8	5.1	6.3	7.7	10.0
B 9	3.2	3.8	4.4	5.5	8.7	3.3	4.0	4.4	5.7	7.3
B10										
B11										
B12										
MEAN	3.28	3.69	4.52	5.90	7.51	3.54	4.21	5.02	6.31	8.11
SIGMA	(.23)	(.29)	(.51)	(.98)	(1.10)	(0.31)	(0.52)	(0.66)	(0.98)	(1.06)

In Grade 5 (Table IV-7), the bottom 10% (D_1) of the students in every group B school scored at the 3.0 level--or at the absolute minimum on this test in October 1970. Six months later, in only one school (B 8) had the students in the lowest 10% of the grade made any significant progress. In 7 of the 12 schools, 25% of the students (Q_1) were performing at the 3.0 level in October 1970. By the spring test, the average gain for these students was .3, but in two schools (B 7 and B 8) students in the bottom 25% of the grade advanced .5 and .7, respectively. At the other extreme (D 9), students in the upper 10% of the fifth grade at school B 2 consistently performed at a much higher level than their counterparts in the other B schools. The average gain from fall to spring for students in the top 25% of Grade 5 was .8 and for the top 10%, the gain was 1.1.

The reading achievement picture for Grade 6 students in these same schools is not the same as Grade 5 achievement. (See Table IV-8.) In Grade 6, the largest improvement from fall to spring occurs at the median (Q_2) and at the top 10% of the grade (D_9), but in neither case is the difference as much as .6 (or the amount of time that has elapsed between tests). There is a slight <u>decline</u> in achievement for the lowest decile (D_1) and only negligible improvement for the quartile (Q_1). In eight of the 12 schools in group B, the students at the lowest decile scored at the 3.0 level in October 1970, still the minimum score on this sub-test; six months later, the number of schools at that 3.0 score <u>increased</u> to nine. The performance of the students at the bottom of Grade 6 in reading stayed at the same level as the students in Grade 5 throughout the 1970-71 school year. For the lowest quartile (Q_1) in the group B schools, there was no change in achievement for Grade 6 in six of the 12 schools during the year:

B 1, B 3, B 5, B 10, B 11, B 12. In two schools, B 2 and B 4, achievement scores for the lowest quartile declined from fall to spring. Three schools (B 1, B 2, and B 3) also show a slight decline in achievement at the third quartile. One other difference between Grade 5 and Grade 6 performance should be noted. In Grade 6, the school with the highest achievement performance was B 8 in which the improvement in reading was .7 or better for all but the lowest 10% of the sixth grade. Although school B2 still has one of the better sets of reading achievement scores in Grade 6, performance does not match that of either Grade 5 or Grade 7.

The statistics on Grade 7 achievement are limited to those 9 schools which have a seventh grade. (See Table IV-9). Grade 7 is the first instance in which improvement during 1970-71 for the students in the lowest 25% of the seventh grade was relatively high. The average gain for group B schools at Q_1 was .5, which is the largest gain for this group of students in Grades 5-7, and appears to be somewhat unusual for this group of schools. The variation in the level of achievement among these nine schools is particularly great for the third quartile (Q_3) and for the top 10% of the grade (D_9). The top 10% of the students in school B2 "topped out" of this test in October, and in April the top 10% of students in schools B2 and B8 were at the maximum achievement level on the reading subtest.

An analysis of performance for all schools within the same group or category is useful both for discovering patterns which may exist and which may require special attention and for noting differences in performance among schools or among grades. For example, the reading subtest scores for group B schools indicate a pattern of low scores and almost negligible

improvement for students in the lowest 10% of Grades 5, 6, and 7. The same is true for the bottom 25% of the students in Grades 5 and 6. At the other extreme of the reading achievement distribution, the gain in achievement for students in the top 10% of Grades 5 and 7 was .6 or better; in Grade 6, however, progress during the year for these students was somewhat slower. There are important differences in achievement patterns from school to school within group B. It is impossible to tell on the basis of only one year's reading achievement tests if these differences persist or if 1970-71 was an atypical year.

F. Sample Analysis #4: Achievement Test Performance Profile of a Single School

Still another use of achievement data, fall and spring, is to create an achievement profile of a school. Tables IV-10 and IV-11 contain achievement test data for a group C school chosen at random. The school is number C 4, one of 13 schools in group C. Data on the performance of students in Grades 5, 6, and 7 have been assembled into one table for fall 1970 test results and another for spring 1971 test results. Students in these grades took nine different subtests of the Metropolitan Achievement Test battery, and the results of each subtest are shown.

In keeping with the school classification system principle that performance data become more meaningful when compared with data from similar schools, Tables IV-10 and IV-11 show test results for School C 4 and for all group C schools. Only two statistics are displayed: the mean, which indicates how the "average" student performed; and Q_1 (lowest quartile), which provides a measure of how students at the bottom of the grade performed.

TABLE IV-10: INDIVIDUAL SCHOOL ACHIEVEMENT TEST
PERFORMANCE ALL STUDENTS, FALL 1970
SCHOOL C 4

1/ TEST	GRADE 5				GRADE 6				GRADE 7			
	SCHOOL MEAN	GROUP C MEAN	SCHOOL Q_1	GROUP C Q_1	SCHOOL MEAN	GROUP C MEAN	SCHOOL Q_1	GROUP C Q_1	SCHOOL MEAN	GROUP C MEAN	SCHOOL Q_1	GROUP C Q_1
1	3.35	3.54	3.0	3.02	2/ 4.69+	4.08	3.3	3.14	3/ 4.15-	4.83	3.6	4.03
2	3.46	3.52	3.0	3.00	4.59+	4.09	3.1	3.16	3.72-	4.35	3.0	3.41
3	3.37-	3.92	3.0	3.19	5.11+	4.47	4.4+	3.61	4.64	4.69	3.8	3.77
4	3.61	3.76	3.3	3.22	4.99+	4.44	3.8	3.57	4.52	4.90	3.0	3.34
5	4.47	4.46	4.2	4.09	5.17	5.04	4.7	4.57	5.48	5.64	4.8	5.16
6	4.09	4.10	3.9+	3.67	4.76	4.62	4.2	4.04	5.32	5.37	4.7	4.65
7	3.42	3.50	3.0	3.00	4.48	4.05	3.6+	3.25	4.12-	4.79	3.6	4.08
8	3.54	3.76	3.0	3.16	4.80+	4.22	4.1+	3.45	4.40	4.60	4.1	3.85
9	3.88	3.76	3.4	3.25	4.82+	4.40	3.9	3.75	4.02-	4.82	3.2-	4.08
10												
11												

KEY

1/ For names of tests, see Table IV-1, pg. 41.
2/ + or ++ = Performance significantly above average for Group C schools.
3/ - or -- = Performance significantly below average for Group C schools.

TABLE IV-11: INDIVIDUAL SCHOOL ACHIEVEMENT TEST
PERFORMANCE ALL STUDENTS, SPRING 1971

SCHOOL C 4

1/ TEST	GRADE 5				GRADE 6				GRADE 7			
	SCHOOL MEAN	GROUP C MEAN	SCHOOL Q_1	GROUP C Q_1	SCHOOL MEAN	GROUP C MEAN	SCHOOL Q_1	GROUP C Q_1	SCHOOL MEAN	GROUP C MEAN	SCHOOL Q_1	GROUP C Q_1
1	3.66	3.99	3.0	3.24	4.93	4.47	3.4	3.42	4.59	5.12	3.9	4.20
2	3.86	3.97	3.1	3.19	4.73	4.42	3.3	3.34	3/ 4.12-	4.83	3.3	3.85
3	4.46	4.66	3.5	3.93	2/ 6.09+	5.14	5.3+	4.29	5.33	5.64	4.8	4.56
4	3.90	4.22	3.1-	3.38	5.42+	4.77	3.8	3.73	5.14	5.22	4.0+	3.48
5	4.79	4.75	4.5+	4.28	5.34	5.24	4.9+	4.65	5.57-	6.05	5.0-	5.42
6	4.02-	4.27	3.6	3.77	4.77	4.75	4.0	4.03	5.43	5.86	4.4-	5.10
7	3.74	3.88	3.1	3.15	4.57+	4.03	3.4	3.21	4.48-	5.06	3.6-	4.22
8	3.67-	4.05	3.2	3.36	4.84+	4.40	4.1+	3.65	4.63	4.98	4.1	4.22
9	4.18	4.22	3.6	3.53	5.26+	4.50	4.2++	3.52	4.60	5.33	4.0-	4.55
10												
11												

KEY

1/ For names of tests, see Table IV-1, pg. 41.
2/ + or ++ = Performance significantly above average for Group C schools.
3/ - or -- = Performance significantly below average for Group C schools.

Had the tables included only scores from School C 4, the reader would have been able to make only limited observations about the level of achievement in the school. By themselves, the data from School C 4 paint a picture of a school which is performing below "grade level" on every subtest, in every grade. The lowest quartile of the 5th grade scored at the minimum on five of the nine subtests in fall 1970 and made only slight improvement during the year. Looking across grades, the achievement level of the average student (fall 1970) in Grade 6 was higher than that of the average student in Grade 7 in six of nine subtests (word meaning, reading, language, language study skills, social studies information and study skills). Sixth grade students in the lowest quartile scored higher than seventh grade students on four subtests (reading, language, language study skills, and science). In the spring test results, the mean seventh grade score continued to fall below the mean sixth grade score on most subtests.

The inclusion of comparable data for all group C schools allows a more extensive examination of this school's achievement profile. For example, the unusual situation described in the preceding paragraph (Grade 6 scores exceeding Grade 7 scores) does not hold true in group C as a whole. Moreover, when compared with all group C schools (fall 1970), the average student (Grade 5) in school C 4 is at or slightly below the group C mean in every subtest except science. However, Grade 5 students in the bottom quartile score at or slightly above the average for all Q_1 in group C and significantly higher than average in arithmetic problem solving (Test 6). The average Grade 6 student in school C 4 performs above the average for all group C schools on every subtest and significantly

above other group C schools in word knowledge, reading, language, language study skills, social studies study skills, and science. The same is generally true for 6th grade students at Q_1, except that school C 4 is significantly above other group C schools in language, social studies information, and especially in social studies skills. The opposite is true for Grade 7; that is, school C 4 students tend to score below students in other group C schools. The average student is significantly below the average group C student in four of the nine subtests.

Six months later, in April 1971, the relationships between the scores of school C 4 and scores for all group C schools have changed relatively little. In Grade 5, the mean score for school C 4 in arithmetic problem solving and in social studies study skills is significantly below the mean for group C; at the first quartile, C 4 does significantly better than group C in arithmetic computation and significantly worse in language study skills. Grade 6 continues to perform at or above other schools in group C and significantly higher in several subtests. Spring test results for Grade 7 remain below other group C schools, except for the performance of the lowest quartile on the language study skills subtest. School C 4 students at the lowest quartile gained 1.0 years from fall 1970 to spring 1971 on the language subtests.

As achievement data for a school are accumulated over time, the profile of school performance will become clearer. Deviations from a predicted achievement level or from past patterns can serve as warning lights for the staff at the school and for area office personnel.

G. Concluding Observations

Four examples have been given to illustrate how data on relative achievement might be used in educational decision-making. These examples do not exhaust the possible uses of achievement data as a tool in diagnosing needs of schools, grades, or group of students.

In this initial phase of the Atlanta project, we have only begun to harvest information from existing achievement results. It is clear from working with data from only 36 of 120 elementary schools, and only three of at least six grades tested, that the volume of achievement data will be tremendous. It is equally apparent that there is a premium on the rapid feedback of information on school performance to school personnel if the achievement data are to be used in decision making. If these problems are to be overcome, then the users of performance data in Atlanta will have to specify the questions to be addressed in the achievement analyses.

CHAPTER V. A DATA GAP: PARENT/TEACHER CONTACTS

In attempting to develop and test the school classification technique, it was necessary: 1) to determine what data are collected in a large school system; 2) to identify potential users of the data; and 3) to specify potential uses for the data. In the process of doing this, gaps in existing data were inevitably identified. While the classification technique relies heavily on using existing data, the system should also be responsive to the data needs of the school administrators. Chapter V describes efforts to develop an instrument which could be used by the teacher to record information about contacts with a child's parent or guardian. No such data are available in Atlanta at present.

A. The Importance of Parental Involvement

Time and time again, during interviews in Atlanta, school personnel mentioned the importance of parent-teacher contacts, as an indication of parental interest and involvement in the child's education. Beyond a general agreement that such contacts are "important," there was little agreement either about what such contacts mean for the child or how statistics on parent-teacher contacts could be interpreted.

Some of those interviewed thought that the frequency of parental visits to school or telephone contacts with the teacher would be related only to the employment status of the parents, while others felt that the frequency of contacts would correlate with the education level of the parent. Both views would lead one to trust parent-teacher contacts as a variable describing socio-economic status. Still others who were

interviewed believed that the frequency of parent contacts with the school was an indication of the attitude toward education in the home, while another group interviewed felt that parent-teacher contacts are significant as a reflection of the "openness" of the school or the attitude of the teacher. Both views would lead one to treat parental involvement (as reflected by contacts with school) as a desired output of the educational process.

A number of other ideas were expressed which reveal the complexity of the concept of parental interest. According to one view, parental contacts with schools do not necessarily have a positive influence on a child, but the absence of parental contacts does have a negative impact. Similarly, one principal indicated that she would not know how to interpret statistics on the number of parent-teacher contacts in a class, unless that number were zero; then the principal would know something was very wrong. Another principal felt that the number of contacts between a teacher and a parent was not nearly so significant as who initiates those contacts. Several people felt that substantive discussions have more impact on how a child achieves in school than casual contacts between parent and teacher. Still others felt that more could be learned about a child and, hence, his individual needs through casual conversations with parents than through structured, formal conferences.

A review of the literature revealed no consensus about the meaning or importance of parental involvement in the educational process. Studies can be found to support almost any of the ideas expressed by those interviewed. Some studies have shown that parental involvement has a positive effect on student achievement, while others have shown that efforts to involve parents in the educational process have no effect at all on pupil

achievement.3/ It is quite possible that positive support at home (e.g., reading to a child, taking interest in his work, subscribing to a newspaper) makes the difference, not what the parent does in relation to the school. We will not even find leads to this causal relationship until more is known about what is happening in the area of parent involvement in education.

In sum, all those interviewed expressed interest in trying to determine what is the nature of parent and teacher contacts, what patterns exist among grades within a school and across schools, who initiates the contact, what type of discussions occur, what actions result, and what relationship exists between the level of parental interest and student achievement and/or attendance.

B. The Availability of Data in Atlanta

Like most school systems, Atlanta does not systematically collect data related to parent-teacher contacts, except those data submitted to the State Department of Education by visiting teachers and by social workers. Because parent-teacher contacts were so consistently mentioned as an important ingredient in describing what is happening at a school and, more specifically, because of a request from a principal, an instrument was developed to gather data on this subject.

The instrument was conceived as a way to monitor the frequency and nature of teacher contacts with parents or other adults in the pupil's household. From the outset, the instrument was designed to gather limited data about parent-teacher contacts. The resulting analyses would be

3/ Robert A. Dentler, Bernard Markler, and Mary Ellen Warshuer. The Urban R's. New York: Praeger University Series, 1967.

designed initially to address some of the broad and very basic questions about those contacts. Refinements in the instrument would be dictated by experience and by analyses of the data collected. The instrument was expected to have prima facie value to the teacher by providing a record of home-school contacts. For the principal, classroom by classroom summary data would become a source of information about what was happening in the school. Summary data for schools in the same category would be analyzed and related to other data such as student achievement and student attendance. Analyses across categories of schools should shed light on whether the pattern of parent-teacher contacts vary with the socio-economic composition of the school.

C. The Preliminary Parent/Adult Contact Report

The preliminary form entitled "Monthly Report of Parent/Adult Contacts" was designed in response to suggestions made by Atlanta personnel. The original instrument (Table V-1 of this report) was designed to collect information for an entire class, on a month-by-month basis. The form was structured to require a minimum of work by the teacher. In order to supply the information requested, the teacher usually had only to check the appropriate column. The preliminary form appeared only in a typed version. As a result, two pages were required to list all of the information desired on each contact.

Information about a single contact between parent (or other adult) and the teacher was described in 5 ways: when the contact occured; who was involved; what type of contact was it; what was the purpose of the contact; what prompted the contact. Teachers involved in the pre-test were asked for comments on the form, as well as on the substance of the contact.

TABLE V-1: THE PRELIMINARY INSTRUMENT
MONTHLY REPORT OF PARENT/ADULT CONTACTS

Teacher _____ School _____

Month _____ Class _____

Pupil Register (1)	Date of Contact (2)	Relationship to Child (3)	Type of Contact (4)			Purpose of Visit (5)					
			Face-to-Face Conference (a)	Telephone Conference (b)	Casual Visit (c)	Pupil Academic Problem (a)	Pupil Discipline Problem (b)	Pupil Attendance (c)	Parent Interest in Curriculum (d)	Parent Volunteer Work (e)	Other (f)

Source of Contact					Teacher Comments
Specific note from teacher (a)	Telephone Call From School (b)	Scheduled School Meeting or Activity (c)	Parent Request (d)	Unscheduled Visit by Parent (e)	

a. Type of Contact. Three options were provided: two could be used to describe substantive discussions between the teacher and the adult involved; the other was to be used to describe all other casual visits or discussions.

b. Purpose of the Visit. The options provided in this section of the form were intended to identify the primary subject of discussion or the reason for the contact. Categories were selected on the basis of what principals had indicated were important or representative of the activities and/or interests of parents at their schools.

c. Source of Contact. Responses to this section of form could be used to determine whether the contact was school-initiated or parent-initiated.

A pre-test of the form was carried on in two schools during the month of May. The schools (one in group B and on in group C of the original sample) were selected because of the expressed interest of two principals in finding out what parent-teacher contacts exist and what they mean. The two principals involved in the pre-test also expressed a willingness agreed to designate teachers who would test the form and to instruct the teachers on the form's purposes and use.

The instrument was tested by nine elementary teachers, at six different grade levels in the two elementary schools. At the end of the month an Urban Institute staff member met with the two principals and the nine teachers to get (1) their reactions to the instrument, (2) their views on its use, (3) their suggestions for its improvement. In addition, comments on the form were solicited from another school principal, trained in social work, and from an area resource teacher.

All involved in the pre-test agreed that the form was useful. The principals had the following comments: (1) that research was needed in this area and this was a good beginning; (2) that this instrument would

offer a means to spot teacher needs as revealed by the number of contacts or the specific student problems recurring over a period of time, so that assistance could be offered to teachers; (3) that the instrument could yield information which would give a principal greater knowledge about her school and about patterns which may exist from class-to-class; (4) that monitoring contacts could reveal special school situations which could justify administrative action. For example, if contacts tend to be made primarily by telephone and in the evening, the data could be used as an argument for a schedule which would allow for one extended-day a week (or a month) for teachers to be available for parent visits.

The teachers indicated that the form was not time-consuming to complete and was useful to them for the following reasons: (1) to refresh their memories in preparation for parent conferences; (2) to keep a record of the referrals made (i.e., to the visiting teachers, social workers, principals); (3) to prepare for the State-required end-of-the-year conferences with parents of students who are to be retained in the same grade for another year; (4) to call attention to distinctive patterns or problems which recur, in order to make early referrals. For example, one teacher noticed that a particular student was a behavior problem, especially on Mondays. Both in conversations with the child's parents and in the referral to a school social worker, the teacher was able to describe more accurately the child's behavior patterns.

The principals and teachers involved in the pretest suggested the following changes in the reporting form: (1) change the reporting time period from a month to a quarter, since it is a more significant unit in the school calendar and would allow more time to capture the patterns of

teacher-adult contacts; (2) design the form so that it could become a part of a child's permanent record (e.g., change the instrument from a class record to a student record; (3) put the information for each visit on a single page (as opposed to the two-page pre-test instrument); (4) make the instructions more specific, so that the categories are better understood; (5) combine the categories entitled "type of contact" and "scources of contact" into a single section of the form, since the distinctions between the two were not readily apparent.

A review of the completed pre-test forms substantiated the weaknesses in the design of the instrument indicated by the principals and teachers involved in the pre-test. For example, judgments were not made concerning the major purpose of the contact and many times more than one category was checked. Also, even though information was to have been provided only on substantive discussions, one teacher listed a note sent home on the top of each student's math paper which said "good work."

Even though May was not a typical month due to the number of end-of-the-year conferences, a preliminary analysis showed the the group B school had relatively more contacts initiated by the parents than the group C school participating in the pre-test. In both cases, more contacts were made on the telephone than through parent visits to school. In the group B school, "pupil discipline problem" emerged as the major purpose of the visit (or conference) while in the group C school "pupil academic problem" and "pupil discipline problem" were the most frequent topics of discussion. Because of the confusion in completing the form, it was impossible to conduct a more sophisticated analysis of the results of the pre-test.

D. The Revised "Teacher-Adult Contact Book"

The results of the pre-test did convince Urban Institute staff that a revised instrument should be tested during the next phase of this project. The new form, which is titled the "Teacher-Adult Contact Book" is designed to be of use to teachers, principals, area office personnel, and others concerned with the issue of contacts between school and home. A complete set of the instrument appears at the end of this chapter. A copy of the form by itself appears as Table V-2.

The revised form differs in several significant ways from the pre-test version. One page is provided for each student who appears on the class register at any time during the year, giving the teacher a single place to record contacts with a student's parents or other adults representing the student. Thus, the teacher will have a permanent record of all that has occurred during the course of the year. If a new teacher comes into the classroom, the Teacher-Adult Contact Book should become an important source of information about each student. At the end of each year (or when the pupil withdraws from his class), the form for an individual student will become part of his permanent record file, thus providing a history of contacts between home and school and clues to the individual needs of the student.

The revised form concentrates on substantive discussions relating to the student. The teacher provides information on whether the discussion was parent or teacher initiated (Section III) and then indicates the major topic of discussion (Section IV). Space is provided to allow the teacher to record comments, or indicate what action was taken (Section V) as well as to describe the parent/adult response (Section VI). The form

School _____

School I.D. No. _ _ _ _ _

Teacher's Name _____

Teacher's I.D. No. _ _ _ _ _

TABLE V-2. THE REVISED TEACHER-ADULT CONTACT FORM

Student Name _____ (last) (first)

I.D. No. _ _ _ - _ _ _ _ _ _

Grade _____

SUBSTANTIVE DISCUSSIONS

I Date (mo., day, year)	II Conference With			III Type of Conference (check only one)				IV Topic of Conference (check only one)								V Suggested Action, Referral or Teacher Comments	VI Parent/Adult Response
	Mother	Father	Other Adult (Indicate)	Teacher Initiated		Parent/ Adult Initiated		Pupil Problem			Pupil Progress	Curriculum	School or Community Problem		Other (Indicate)		
				Face to Face (A)	Telephone (B)	Face-to-Face (C)	Telephone (D)	Academic (1)	Behavior (2)	Attendance (3)	(4)	(5)	Peer Group (6)	Community (7)	(8)		

DATE OF OTHER CONTACTS (Optional)

VII Notes or Phone Calls from Teacher	VIII Parent Response	IX Parent Drop-in or Attendance at School Activity

provides optional sections in which the teacher can record other, less substantive contacts with parents or adults (Sections VII-IX).

Teachers will be provided with instructions on how to use the forms and a completed sample form to be used as a guide when questions arise. The teacher will not tabulate the data on the forms. Based on comments made by principals and teachers during the pre-test, it is estimated that completion of the forms for an entire class will take a maximum of four hours per year (estimate assumes 5 contacts x 28 students x 1½ minutes per contact).

The tabulation of data for each class should be done in the school office. A tally sheet (Table V-3) has been developed for this purpose. The tally sheet, which is keyed to the contact form, is to be used for an entire class. The clerk will indicate by a single tally mark, who initiated the conference, how it took place, and the major topic of discussion. The clerk will also tally the number of students whose parents were contacted, the number of contacts for each student, the class totals of categories of conferences, e.g., parent-initiated telephone conferences about student academic problems. The class summary sheets will then be sent to the central office to be keypunched for analysis.

The Teacher-Adult Contact Books should be turned in to the school office at the end of each quarter. It is estimated that it will take one hour per class per year to tally the data. (Estimate assumes 20 minutes per class, 3 times per year). The total time involved will, of course, depend on the number of classes in the school. The principal will have an opportunity, at the end of each quarter, to review the

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)

TABLE V-3

TALLY SHEET FOR TEACHER/ADULT CONTACTS

School _____ Grade _____

Teacher _____

Number of Students with no Contacts ____

Student	A								B								C								D								Total Number of Contacts for each Student
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	
1																																	
2																																	
3																																	
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27																																	
28																																	
29																																	
30																																	
31																																	
32																																	
33																																	
34																																	
35																																	
36																																	
Total																																	

Contact Books. This provides an opportunity to keep abreast of what is happening in the school and to offer assistance to teachers before major problems develop.

E. Analysis of the Teacher-Adult Contact Form

Data collected on the Teacher-Adult Contact forms will be used to describe the amount and nature of the contacts which occur between school and home. The persons interviewed thus far expect to find different patterns among schools with different student populations. The analyses will be tied to the groupings of elementary schools described in Chapter III. Relating the analyses to the classes of students should reveal: (1) whether there are differences among groups of schools; (2) whether there are significant variations in the type of substance of contacts among schools in the same class; and (3) whether differences within a class are greater than differences among classes of schools.

The data will be used for some basic investigations which will describe the nature of teacher-adult contacts. Who initiates most conferences? To what extent are substantive discussions held on the telephone, rather than in person? What kinds of topics are most discussed in parent-initiated conferences; in teacher-initiated conferences? Since the school classification system identifies every school on the basis of its student population, it will be possible to see the extent to which differences observed among schools can be explained by the student composition of the school.

If one assumes that parent-initiated contacts can be used as an indicator of parent interest in education, then the ratio of parent-initiated contacts to the total number of teacher-adult conferences could be used as a simple indicator of the level of parent interest at a school. Similarly, if one assumes that discipline problems are a reflection of classroom behavior, the ratio of conferences about discipline to the total conferences held might be used as a descriptor of the climate at a school.

In order to relate teacher-adult contacts to other school data, such as student achievement or attendance or teacher characteristics, more complicated analyses will be in order. Principals, teachers, and others interviewed repeatedly expressed interest in learning what impact contacts between school and home have on student attendance and achievement. Do parent-initiated conferences appear to have more impact on student achievement than teacher-initiated conferences? Do face-to-face meetings between teacher and parent appear to have more impact than telephone conferences? What is the relationship between student attendance patterns and parental interest in the educational process, as revealed by the total number of conferences? Analyses should be carried out for schools within the same class, as well as across classes.

F. A Proposal for More Extensive Testing of the Teacher-Adult Contact Form

A two-phased test of the Teacher-Adult Contact Form is proposed for the 1971-72 school year. At least 12 elementary schools should be involved in the test. The schools should be selected from among several of the groups identified in Chapter III. The test will involve classroom

teachers and some clerical personnel. The proposed schedule for the test of this instrument would be as follows·

Fall Quarter. Teacher-Adult Contact Books will be distributed during the first weeks of the term to all classroom teachers in six elementary schools. The schools should be chosen from two or three different groups of schools. An orientation session will be held in each school to describe the instrument, its value to the teacher and the school system and the teacher's role in the field test. At the end of the first quarter, the teachers will be interviewed for suggestions and opinions about the use of the form. Clerks will be instructed on how to tally the data for a school.

Winter Quarter. The Urban Institute staff will carry out a preliminary analysis of the data collected in the first quarter. Teachers in the six original schools will continue to use the instrument. Six new schools will be chosen for the field test, including some schools from other groups in the classification system. Revisions will be made if indicated by problems with the original form. Orientation for staff from the six new schools will be conducted.

Spring Quarter. The instrument will be tested in the six new schools. The original six schools will continue to use the instrument. At the end of the third quarter, all teachers and principals involved in the field test will be asked to comment on the form. Data will be analyzed for all schools involved in the field test. Recommendations will be made about system-wide use of the instrument.

If the teacher-adult contact instrument is adopted, data from the schools should be sent to the central office for analysis twice a year: (1) At the end of the first quarter, in order to provide special training or assistance for an existing school staff and to plan for special programs or allocation of resources for the following school year. (2) At the end of the third quarter, to capture the cyclical patterns of contacts from the beginning to the end of the year and to be included in the school profile.

By the end of one year of testing, the Teacher-Adult Contact form should be ready for use throughout the school system. The field test will give classroom teachers a chance to use the form in a real school setting, to make comments on the form and to revise the form if necessary. Only actual experience filling out the form and analyzing the data collected can reveal how teachers, principals, and other school system personnel will make use of the data it contains. After one year of limited use, both practitioners and researchers alike should have clearer insights into the meaning and importance of contacts between school and home.

TEACHER-ADULT CONTACT BOOK

School .....

Grade .....

Academic Year .....

Name of Teacher(s) .....

.....

Atlanta Public Schools / Urban Institute 07-71

INSTRUCTIONS TO TEACHERS IN

USING TEACHER-ADULT CONTACT BOOKS

This book has been designed to provide information on the amount and types of contacts a teacher has with the parents (or individuals functioning as surrogate parents) of the students in the classroom. It is assumed that, in addition to providing the teacher with a summary record of parent contacts throughout the year, the information from the form will also be of value to future teachers in understanding a student's background and, in turn, his needs.

To accomplish this, the individual student forms will become a part of a child's permanent record. At the time of a transfer or at the end of the year, the individual student sheets should be removed from the booklet and added to the student's permanent record. Data contained in the forms will be tabulated and analyzed centrally in an effort to learn more about the significance of contacts between school and home.

The following procedures should be followed in using the teacher-adult contact book:

1. At the beginning of the year, fill in (a) the information on the cover page and (b) on the following pages, the name and I.D. number of each student enrolled in the class (one student per page).

2. Whenever a child transfers into the class, enter his name and I.D. number in the contact book. All students whether their parents have been contacted or not should have a contact form.

3. Whenever a student transfers out of a class, remove the contact sheet from the book and add it to his permanent record.

4. At the end of each quarter, turn your contact book to the principal's office, so that the data can be tallied. The book will be returned to you within a few days.

5. The instructions for the completion of the form are on the sample sheet (p.). As an aid in remembering the details of the conference/contact, complete the entry as soon after the event as is possible.

Student's Name Fuller, John

I.D. No. _____

Grade _____

Teacher's I.D. No. _____

SUBSTANTIVE DISCUSSIONS

I Date (Mo., Day, Year)	II Conference With			III Type of Conference (check only one)				IV Topic of Conference (check only one)								V Suggested Action, Referral or Teacher Comments	VI Parent/Adult Response
				Teacher Initiated		Parent/Adult Initiated		Pupil Problem				School or Community Program					
	Mother	Father	Other Adult (Indicate)	Face-to-Face (A)	Telephone (B)	Face-to-Face (C)	Telephone (D)	Attendance (1)	School (2)	Attendance (3)	Pupil Progress (4)	Curriculum (5)	Part Time (6)	Consultant (7)	Other (Describe) (8)		
11/25/71	✓				✓				✓							Child trouble in teacher, attitude affecting work. Referred to psychologist	Supportive, but fearful
4/3/72			Grandmother				✓				✓					Assured her that both attitude and work improving.	–

SAMPLE

DATE OF OTHER CONTACTS (Optional)

VII Notes or Phone Calls from Teacher	VIII Parent Response	IX Parent Cooperation Attitude Toward School Personnel
11/25/71* (note sent & request conference)	no response	12/15/71
12/7/71	NA	

Instructions

Heading: Enter student name and I.D. number.
Col. I: Enter month, day and year.
Col. II: More than one box may be checked, e.g. mother and father. Indicate adult other than parent (see second entry above).
Col. III: Check only one box. For example, in the second sample entry, the grandmother may have telephoned to set up an appointment, but the actual conference took place at school, so the appropriate box to check is (D): parent/adult-initiated telephone conference.
Col. IV: Even though a conference may involve more than one issue, check only the major topic of discussion. Related or secondary issues should be indicated in Column V as in the first sample entry above, i.e., "attitude affecting work."
Cols.V & VI: Include pertinent information which will be helpful in further discussions with parents or will aid future teachers in understanding the student's needs, problems and attitudes of parents.
Cols. VII, VIII, & IX: These columns are for the teacher's use. It is assumed that the information in these columns will be helpful at end of year discussions with parents. Cols. VII and VIII are related. Place an asterisk after a date in Column VII if a response is requested. If the parent fails to respond, indicate that fact in Column VIII (see first entry in Cols. VII & VIII). If no response is needed or expected, enter "NA" in Col. VIII (see second entry). In that case, a note was sent home on December 7 to invite parents to a Christmas play. No responses was expected. One of the parents attended the play on December 15; therefore, the date was entered in Col. IX.

School _____

School I.D. No. _ _ _ _ _

Teacher's Name _____

Teacher's I.D. No. _ _ _ _ _

Student Name _____ (last) (first)

I.D. No. _ _ _ _ _ _ _ _ _

Grade _____

SUBSTANTIVE DISCUSSIONS

I Date (mo., day, year)	II Conference With			III Type of Conference (check only one)				IV Topic of Conference (check only one)								V Suggested Action, Referral or Teacher Comments	VI Parent/Adult Response
	Mother	Father	Other Adult (Indicate)	Teacher Initiated		Parent/Adult Initiated		Pupil Problem			Pupil Progress	Curriculum	School or Community Problem		Other (Indicate) (8)		
				Face-to-Face (A)	Telephone (B)	Face-to-Face (C)	Telephone (D)	Academic (1)	Behavior (2)	Attendance (3)	(4)	(5)	Peer Group (6)	Community (7)			

DATE OF OTHER CONTACTS (Optional)

VII Notes or Phone Calls from Teacher	VIII Parent Response	IX Parent Drop in or Attendance at School Activity

CHAPTER VI. NEXT STEPS

In the broadest sense, the Atlanta project is concerned with institutional change. All the work done in Atlanta rests on the premise that when information on relative performance is available to school officials, that information will be used to improve the administration of the school system. We are still far from showing the truth or falsity of that hypothesis. During the initial phase of this project, two basic assumptions have been confirmed: a) that existing data can be used to identify similar schools and then to examine their relative performance; and b) that such comparisons have the potential for improving the management of the school system in Atlanta. Much remains to be done to make the idea of comparing relative school performance an operative part of school management. This chapter describes some of the essential next steps in the developmental work on this project.

A. Development of a Model of the Planning/Management Process

A model which describes how and by whom major types of decisions are made is a necessary antecedent to the development of a technique for making performance data routinely available to school officials. The key decision-points in the course of a normal school year must be identified. Decisions are made at many different levels within the school administration, by people with different levels of responsibility. The scope of the decisions varies, as do the responsibilities of those involved.

Once the key decisions are specified, then the principal parties to each decision and the information needs of each can be described. Clearly, the information required by a principal will differ in kind and type from that needed by a curriculum supervisor or by an area superintendent or by a personnel specialist. While each of these individuals contributes to the day-to-day operations of Atlanta's schools, the decisions which each can effect differ considerably. The decision making model must take into account the various levels of school management and describe how they are interrelated.

The model of decision making in Atlanta should identify potential users of information on relative performance. The process of building this descriptive model of Atlanta's management process has already begun. It is a time-consuming, iterative process which relies on interviews with Atlanta personnel and reviews of internal documents. Often, the functions and areas of responsibility of personnel differ in practice from the textbook descriptions. The work of piecing together the model of Atlanta decision making is crucial to the development of any new management technique which is responsive and relevant to the needs of Atlanta personnel. It is easy to build a school classification system capable of generating volumes of data on Atlanta's schools and have those data go unused by school personnel, because the data are not related to the decisions which must be made.

B. Development of a School Performance Classification System

The idea that it is reasonable to compare performance in schools with similar populations is central to this project. But in order to be sure that the comparisons are "reasonable", the question of how to identify similar schools must be much more systematically explored.

During the first phase of this project, schools were identified as similar on the basis of only two variables: economic composition and student mobility. It was assumed that these independent variables are associated with performance. This assumption must be tested. Moreover, there are probably other independent variables which may also be associated with performance. Attempts should be made to determine if data can be assembled on other independent variables, such as race, educational level of the parents, demographic characteristics of the neighborhood. The school system does have racial data by school; data on other independent variables may be available from sources outside the school system. Once data have been assembled on these independent variables, then their relation to the distribution of achievement in a school or changes in the distribution of achievement must be examined. The result of these efforts will be the specification of a set of classifying variables which groups together schools that are most homogeneous with respect to performance.

Analyses of achievement data along the lines suggested in Chapter IV can be carried out within and among groups of similar schools. Since Atlanta administers achievement tests twice each year, it will be possible to produce at least two reports on school achievement performance. The report, based on results of the fall testing program should be available for use in the development of the school system's budget for the next

school year and for use by various school administrators in modifying the current school programs. The second report on achievement will focus on changes in performance which occurred during the school year. This report can be produced by the summer so that the information it contains can help shape school policies and practices during the next school year.

C. Development of Input and Process Variables

What accounts for observed variations in the performance of similar schools? The answer is presumed to lie in the resources going into the school and the process of education which takes place in the school. Measures of input and process remain to be developed and tested. In order to minimize the disruption to Atlanta, work on the input and process variables can be carried out in a sample of schools. When techniques for measuring resources and for describing the educational process are perfected, the data necessary for these measurements can be collected and analyzed for all Atlanta schools.

Atlanta does maintain data on the cost of materials, books, personnel, supplies, and equipment on a school-by-school basis. What must be explored is how, if at all, the costs of both regular and special school programs relate to student performance. Similarly, Atlanta has a wealth of information on the characteristics of its staff--age, sex, years of experience, degree level, staff turnover, and absenteeism--which can be examined for correlations with student performance.

D. Concluding Observations

The true test of the technique of comparing relative school performance is not whether the mechanics of how to make the comparisons can be worked out. Rather, it is whether school officials will use the data which have been produced when they make decisions which affect the operations of the schools. At present, it is difficult or impossible for administrators to take into account differences in performance when deciding how to allocate resources, staff, or programs. Information on performance may not be available at all or may not be available in readily usable form.

Work done in Atlanta to date has shown that it is possible to produce data on relative school performance. Much remains to be done to explore the potential uses of these data to diagnose student needs and to improve student performance. Time and effort will have to be spent demonstrating how the data produced through the classification technique can be brought to bear on the important issues confronting Atlanta school officials. One approach will be to help Atlanta personnel identify some specific planning or management issues which can be addressed with the aid of information from the classification system. Project staff can work with the personnel involved to see what can be learned from data produced by the classification system.

While this paper has been devoted to a description of a project involving only the Atlanta public schools, the management problems which confront officials in Atlanta are similar to those encountered by administrators of large school systems across the country. Atlanta is ready to experiment with systems which will routinely provide information on

performance in a form that can be used by officials who run the schools. The extent to which exposure over a period of time to performance data has a positive impact on the operations of a local school system should be of interest to researchers and practitioners alike.